

MACHINIC CARTOGRAPHIES: LITERATURE AND LABOR AT THE END OF WORK

By

ARON PEASE

A DISSERTATION PRESENTED TO THE GRADUATE SCHOOL  
OF THE UNIVERSITY OF FLORIDA IN PARTIAL FULFILLMENT  
OF THE REQUIREMENTS FOR THE DEGREE OF  
DOCTOR OF PHILOSOPHY

UNIVERSITY OF FLORIDA

2010

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To Jill

## ACKNOWLEDGMENTS

I owe a debt of gratitude to many people. First, I thank my director, Phil Wegner, who has inspired, challenged, and guided me throughout the process. He read multiple versions of this dissertation as it evolved and had numerous conversations with me about the project. I have been working with Phil since my second semester here, and I can't imagine completing this dissertation without his advice and friendship.

I thank my committee: Terry Harpold, Susan Hegeman, Aida Hozic, and John P. Leavey, Jr. I admire their work as scholars and marvel even more at the generosity and patience they have shown, as each has helped me at various stages as my project evolved. Terry graciously joined the committee already in progress, and has helped me learn how to write about new media theories and objects. Susan taught one of the first seminars I attended here, which I have kept in mind as a model for my own teaching; and she helped me re-think my project after my reading exam. Aida has talked over the project with me on several occasions, pushing me to consider aspects of political economy that have filled in gaps in my theoretical positions. John's theory seminars in many ways prepared me to do this work. Last, I thank the committee as a whole for making the dissertation defense a challenging and rewarding experience.

I thank my friends at the University of Florida who have generously read and offered feedback on my writing: Matthew Feltman, Regina Martin, Andrew Reynolds, Todd Reynolds, Michael Rowley, and Harun Thomas. Moreover, my conversations with these talented colleagues and friends have helped me articulate my arguments more clearly, while also helping me arrive at more interesting and nuanced positions. I also thank members of the MRG past and present for providing a forum for the testing of ideas.

I thank the people of the English Department: the staff, especially Kathy Williams and Carla Blount; fellow graduate students from seminars; and my professors. I thank Creed Greer and John Ronan for employing me in recent years.

I also have the pleasure of thanking mentors outside of the University of Florida. Joseph Tabbi has read multiple chapter drafts, and his editorial advice on other projects has helped me improve my writing. His own scholarship was a key starting point for my project. Ellen Berry, my thesis director at Bowling Green State University, taught me a lot about contemporary theory and advised me during the process of choosing a doctoral program. Michael Harris, my favorite undergraduate instructor, started me on this path.

Last and most important, I thank Jill for always encouraging me when I felt most discouraged.

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Abstract of Dissertation Presented to the Graduate School  
of the University of Florida in Partial Fulfillment of the  
Requirements for the Degree of Doctor of Philosophy

MACHINIC CARTOGRAPHIES: LITERATURE AND LABOR AT THE END OF WORK

By

Aron Pease

August 2010

Chair: Phillip Wegner  
Major: English

This dissertation analyzes the production of economic value in contemporary capitalism, using various versions of the “end of work” thesis as a rubric for understanding how this production has changed since the demise of the gold standard measure and the invention of the microchip. The end of work has appeared in many forms, including popular journalistic accounts of structural unemployment and the new economy, Marx's “Fragment on Machines,” and various debates surrounding cybernetics and automation in the 1950s. Moreover, Michael Hardt and Antonio Negri have popularly argued that Marx's law of value no longer holds in our contemporary era, whose hegemonic form of labor is immaterial, defined by the production of communication and emotion. I use literary representations of different spatial scales in order to consider the production of value at different sites: finance and language, the body, the metropolis, and the globe.

I argue that contemporary literature in our current media ecology has become a privileged site for understanding the fate of living labor in a time of globalization, knowledge work, and intense machine production. If today communicative labor (i.e., language production in various forms) is hegemonic, then the labor of literature

increasingly resembles the kind of work that produces economic value. For this reason—because authors are workers—this dissertation focuses on literature concerned with the role of the author in the creation of literary value or communication, and with the role of the novel as the primary medium for this production. By staging this tension at expanding scales, I show how different tempos and spaces of capitalism interact, and how an understanding of how capital works today changes depending on this perspective. What appears as an end of work at one level may appear as a new form of value production at another. What appears as the end of Marx's law of value at one level may appear to be an end of work at another.

CHAPTER 1  
THE END OF WORK AND THE LABOR THEORY OF VALUE: A CARTOGRAPHY

Our theory of value will have to be nothing less than a cartography. This will undoubtedly be a formidable undertaking.

—Antonio Negri, *The Politics of Subversion*

They're turning kids into slaves just to make cheaper sneakers. But what's the real cost? 'cause the sneakers don't seem that much cheaper! Why are we still paying so much for sneakers when you got them made by little slave kids? What are your overheads?

—Flight of the Conchords, "Think About It"

### **The Labor Theory of Value as a Cartography**

Two anecdotes, two contrasting “maps” of the space of work: first, the Italian political theorist Antonio Negri kept a large map of the Montedison factory spread across his wall in order to learn the work arrangements and better communicate with the workers. This anecdote illustrates how the layout of work and its productive machines could be knowable under industrial conditions. Second, the post-industrial or postmodern equivalent of Negri’s map is the blueprint for the first integrated microprocessor laid out by Intel engineers over “some dozen square meters.” Here they performed what German media theorist Friedrich Kittler has suggested is the “last historical act of writing” (147). From this point forward, a post-Fordist scene of writing hides production from human authors. Since the computer has become the central tool of post-Fordist work, no aspiring labor organizer can hang a map on a wall and memorize the content of the shop floor.

Fredric Jameson outlines a similar contrast in the opening chapter of his seminal *Postmodernism, or, the Cultural Logic of Late Capitalism*, in this case between the representation of machines of production and machines of reproduction. In an earlier

machine age, Marinetti's motorcar and Le Corbusier's building-machine appear as "visible emblems, sculptural nodes of energy which give tangibility and figuration to the motive energies of that earlier moment of modernization" (36). The "technology of our own moment," however, "no longer possesses the same capacity for representation." Instead of the "streamlined profile" of Frank Norris's Octopus, we have "the computer, whose outer shell has no emblematic or visual power" (37). And here we come to the problem Jameson elucidates in calling for the interpretive task of cognitive mapping:

I want to suggest that our faulty representations of some immense communicational and computer network are themselves but a distorted figuration of something even deeper, namely, the whole world system of present-day multinational capitalism. The technology of contemporary society is therefore mesmerizing and fascinating not so much in its own right but because it seems to offer some privileged representational shorthand for grasping a network of power and control even more difficult for our minds and imaginations to grasp: the whole new decentered global network of the third stage of capital itself. (37-38)

At the point of the text from which the previous quote comes, Jameson has been describing how representations of postmodern machines tend to fall back on "thematic representation of content" about the technologies' reproductive process in general (37). Rather than narratives about the machines themselves—video cameras, computers, tape recorders—we get image reproduction, simulation, and so forth.

I wonder about this distinction. The motorcar, to use one of Jameson's examples, encloses its essential technology in an outer shell, just as the computer does. Why should one shell be a visible emblem and another not? The answer lies perhaps in the fact that the computer belongs to an age of machines that are in fact or most importantly part of a network. The computer on its own seems not to be all it can be—a point relentlessly driven home these days by advertising—whereas "the motive energies" (of the airplane or motorcar) are on display with just the one.

This explanation of the distinction brings up two crucial themes. First, if we consider machines of this third age as achieving their full capacity only when plugged into networks of other machines—communication or transportation systems, subroutines or one-way functions, other operators—then the representational shorthand is nothing more than how they work. In another sense, however, the fact that this is how machines work—the facticity of our use of computers and the Internet for instance to network corporate users around the globe—tells us much about the decentralized global network of postmodern capitalism. But then we might ask whether this too is a shorthand representational system, or the very *cause* of the decentralized system, in which factories today are themselves one machine among many plugged into a network, a factor of more general production rather than the site of production. A feedback loop runs between technologies and machines that make transnational production possible and the transnational production that requires and so creates such machines (even then, though, the very form of capitalist production is brought into being—capitalism can have a world market or capitalism can exist without going transnational).

Second, what we learn about the failure of contemporary machines to inspire representation in the same way as their predecessors is the notion that the hardware itself has become less important. The miniaturization of the computer onto a chip is a decisive—perhaps the most decisive—hardware invention for our current system, but the computer ultimately is a machine for simulating other machines, not producing them. The computing machine is, at bottom, software (or, rather, there is no software).

In a sense, then, mere thematics about the process may be figures for the soft machinery that runs the system. And software is immaterial in the sense that it is reproducible, not confined to any one material site. It can exist in more than one place at a time. And that is also an essential fact of transnational capitalism. Capital no longer exists as bound to its nation or single sites of production; it has the potential to proliferate anywhere, which is a way of reproducing itself to exist anywhere. For instance, the so-called threat of “cheap labor” somewhere else drives down wages just the same as if that cheap labor were actually producing at that moment. The globe gives way to the infinite—because it is potentially infinite—self-representation of capitalism. This is why the Intel corporation can write that “the primary benefit of a faster CPU . . . will in time become more of a secondary quality” (qtd. in Kittler “Protected Mode” 190). As chips get faster, in other words, less of that computing energy will go towards actual computing as it relates to its end-user. Instead, it will be directed toward so-called peripheral functions, or to maintaining, as Kittler observes, “the reality of precisely that bureaucracy that ordered its design and called for its mass application” (162). The difference between these two generations of machines, which Jameson describes, may be that the latter already incorporates this network or capitalist process required for its proper use—and that calls for it—into the machinery itself. The technology is not merely smaller, like a smaller car, for instance. What is unique about the third age of machines is that the content of the shop floor or the structure of the bureaucracy it serves is made literal and incorporated into the machinery itself.

The expansion of peripheral functions to dominate the CPU performs at a micro-scale the expansion of the cultural in postmodernism, or what has been described by

many commentators, including Andre Gorz and Michael Hardt and Antonio Negri, as the expansion of capital into the reproductive process. The postmodern space of the machine is now saturated, inseparable from capital. At the same time that the factory becomes a factor rather than a site of production, an expansion of the scale or space of capital—that has been named the social factory or the ecological machine—the technology itself incorporates capitalist relations of production in literal ways and at a miniature level. Negri's map becomes at once too small in scale and too large in scale. Cartographies of the machine or of the labor-machine interaction now must take place at many different scales from the microchip to the territory, the latter which Negri has called "the spatial ontology of the productive society."

In *The Politics of Subversion*, Negri makes a case of sorts for maintaining the law of value in an analysis of capitalist production, and, as we will see later, a case for which he has not always argued the same side. While conceiving of value as something now immeasurable, Negri still maintains that we must construct a law of value:

Value exists wherever social locations of working cooperation are to be found and wherever accumulated and hidden labour is extracted from the turgid depths of society. This value is not reducible to a common standard. Rather, it is excessive. It is a limit that we try to approximate. Its apprehension and quantification are impossible. As to the act of measurement, it is interminable. We can therefore do nothing other than continue attempting to trace all the spatial and temporal determinations of value as they are revealed by social labour. In doing this, we must abandon the illusory notion of measurement and the mystification of mediation. *Notwithstanding this, it is possible and necessary to construct a theory of value.* (*The Politics of Subversion* 91-92, Negri's emphasis)

He pens these words several years after writing in the essay "Constitution of Time" that we can "probably" throw out most of it: "Does this mean that Marx's theory of value and time should be put out to pasture? The answer is probably yes for a sizeable part of it" (29). How to reconcile these two arguments? Perhaps they are just two different

perspectives of the same thing? Whereas the earlier argument emphasizes time and its deficiencies in Marx's theory of value, in *The Politics of Subversion*, Negri emphasizes space with the concept of cartography before once again referring to the immeasurability of production:

Our theory of value will have to be nothing less than a cartography. This will undoubtedly be a formidable undertaking. It will involve setting out 'maps' of value which approximate the detail of the movements of social labour and which outline, show and predict new objective possibilities of subjective coordination and cooperation. A law of value which responds to current needs must be one which allows us to navigate the flows of value and construct compasses which serve: to deepen the level of cooperation, to establish flow-channels and to grasp opportunities for original accumulation. If afterwards we wish to measure all this, there are a number of accounting techniques available which are highly complex, comprehensive and precise. But let us not confuse accountancy with a theory of value. (92)

Negri's language emphasizes space. In order to construct a theory of value for a time of postindustrial or biopolitical production, we must set out "maps" and "navigate the flows." But we must also "construct compasses" for an apparent intervention with such a map, and Negri's writing contrasts such action ("to deepen," "to establish," "to grasp") with what might be described as the inaction of measurement. Indeed, as Negri continues to lament this confusion, he adds, "socialism represented the planning of time without meaning; it was the measurement of nothing" (92). In order to provide such a cartography as that described by Negri, I use the end of work as a guide.

Under the end of work rubric, I refer to various theories or interpretations of the state of capitalism in the late twentieth century, as well as the various phenomena that such theories (and histories) attempt to describe. I don't see the end of work as a kind of cognitive map in its own right (it's mapping, not map anyway) or a privileged shorthand that solves Jameson's representation problem. Instead, I find the end of work productive as a way of bringing important problems or questions or antagonisms to the

forefront. Under the end of work umbrella, I include popular arguments such as Rifkin's that work is ending, because industrial labor has been displaced by automation (and outsourcing—which would make the end of work merely a Western problem), an argument that goes back to the middle of the twentieth century. I also include more nuanced accounts based on Marxist economics, such as those of Andre Gorz. Gorz views the micro-electronic revolution as advancing an irreversible trend of structural unemployment that greatly reduces the creation of surplus value, and thus the accumulation of capital. In this view, the production of value wanes but work continues on, disguising its dying through jobs that redistribute revenue but do not produce value (i.e., capital). Gorz thus maintains key Marxist concepts of the labor theory of value and productive and unproductive labor. I am interested in such arguments, not because I argue that work is ending or that we are slipping into socialism, or not because I don't appreciate that there is a certain naiveté to the more popular accounts, such as those of Rifkin, Vivian Forrester, and Alvin and Heidi Toffler, to name examples. I do, however, think they bring out important aspects of our current era of production that perhaps complement the important work of Hardt and Negri.

My cartography uses the law of value. Hardt and Negri use the language of flows and use an end of the law of value as their version of the end of work, in which capital is now merely an apparatus of capture or a phantasm. Caffentzis wrote about this in reviewing *Labor of Dionysius*, and referred to their analysis as posing an end of work. The problem seems to be that it changes where or how exploitation and alienation occur. In a sense, capital as an apparatus of capture or an obstacle is capital as it always has existed. It doesn't create value. Living labor creates value. Capital doesn't

innovate; class struggle innovates. Hardt and Negri see a difference in the way, for instance, language or cooperative networks get produced in the social realm and then made into products eventually through that obstacle—or, rather, some part is subtracted out into a commodity via the apparatus of capture. What is produced has to be reduced to become useful for capital. Capital has always done so; the apparatus does not refer to post-industrialism only. In another sense, it is different from the industrial situation Marx was writing about. In that mode of production, the capitalist organized the process himself, first bringing together many workers under one factory roof, and then eventually devising the entire factory system, whereby craft and tool are systematically changed into a system of machines (see Marx's chapter on machinery in *Capital* vol.1). In the immaterial mode of production, Hardt and Negri see production overflowing, since what produces surplus value in the workplace is so close to what goes on in social life itself.

Whereas Hardt and Negri emphasize the subjective in the creativity of the workers and in the class struggle, I emphasize objectivity. I do this in order in part to complement Hardt and Negri's work, and in part to understand how the end of work and the situation of Empire or of post-industrialism, globalization, and so forth might be read following Marx's labor theory of value as axiomatic of capitalist production. In other words, instead of beginning from the premise that Marx's labor theory of value should be revised for a new system of production, I begin from the premise that the law of value is axiomatic but flexible, useful for bringing out the most heightened contradictions and crises in capitalist production and reproduction today, as well as their solutions.

I use the concept of cartography and of space in general to examine at these crises at various scales. What appears as an end of work on one scale may be solved

at another scale. What appears as a new regime of production on one scale may be re-fit into Marx's schema at another. In the second volume of *Capital*, Marx writes about the "working period," a more complex version of the working day from the first volume, as it is a collection of working days. He does not write about the different rhythms of time and spaces of production about which Hardt and Negri do in their "Excursus on Method," and in this sense Marx does not capture the subjective reading, what Negri might call the irreversibility of the working day. The objective reading, however, does in some part provide an analysis to which Hardt and Negri's reading may be fit:

A working day of this kind, which is formed by the succession of more or less numerous inter-related working days, I call a working period. If we speak of the working day, then we mean the length of time for which the worker must daily expend his labour-power, must work. If we speak of the working period, on the other hand, this means the number of inter-related working days that are required, in a particular line of business, to complete a finished product. (308)

The concept of the working period thus refers to the inter-connectedness essential to commodity production, an inter-connectedness that would certainly be intensified today via constant outsourcing that flings labor forces around the globe, the development of automation and advancement of the capitalist division of labor that creates a highly complex factory system of machinery, and the teletechnologies that make possible the connections of many more working days into a complex working period. These various spaces and tempos describe an interconnectedness system of scales of capitalist production. Each of these scales can show us certain crises and resolutions.

### **Writing Futures**

This dissertation has several goals. First, I examine the ways in which contemporary American literature represents living labor's fate in a time of intense machine production. Stating that as a goal raises a troublesome question: hasn't the

entire history of capitalism been a time of intense machine production? Have robots and lights-out factories and ubiquitous software really changed the world or the predicament of human labor more than did the assembly line or the telegraph or the railroad—or, for that matter, the factory system of industrial machinery Marx describes in *Capital*? One answer is that, no, perhaps not, but we at the least have a similar revolution in this period, in the microprocessor, personal computer, and World Wide Web. Another answer is that, because machine production—according to the logic of capitalism—constantly increases or becomes more intensive, our era of machine production would necessarily at least be quantitatively greater, without a dramatic revolution. Throughout the history of capitalism, its logic of expansion has dictated that mechanization threatens human labor. In many respects, then, this project is a history of the end of work period ushered in by computerization and the post-Bretton Woods financial capitalism.

As Doug Henwood shows, the terms “new economy” and “globalization” shot into circulation in the second half of the 1990s (3-4, 145-46). These competing descriptions of the post-Cold War situation followed closely on the heels of the “end of work” thesis that became mainstream in the early and mid-1990s, especially after Jeremy Rifkin simply titled his 1995 study *The End of Work*.<sup>1</sup> Concern for such an impending catastrophe is certainly not new, as the history of capitalism is a history of the systematic elimination of human labor from the production process. Apparently what frightens Rifkin is the prospect that even wretches and those reduced to machine

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<sup>1</sup> For an overview of “End of Work” writing, see Nick Dyer-Witheford, *Cyber-Marx: Cycles and Circuits of Struggle in High-Technology Capitalism*, and George Caffentzis, “The End of Work or the Renaissance of Slavery?” The terms of my periodization should be read as competing with, as much as they are succeeding, each other.

appendages will be served their walking papers, as human labor is eliminated, or at least relegated to peripheral roles as watchmen of machine processes and low-wage labor performing work so denigrating that the capitalists have not yet bothered to automate it.

*After the New Economy* (another post- in which we live, as Henwood has shown), two descriptions of life compete for our attention under the headings “Empire” and “Terror.” These terms oppose each other in the sense that events gathered under the former pose a challenge to the thesis of the latter for influence of “mass consciousness.” As Don DeLillo’s fictional author Bill Gray may have accurately forecasted, “novelists and terrorists are playing a zero-sum game” (156). Accepting the thesis of de facto novelists Hardt and Negri, that a “supranational” imperial sovereignty has displaced the imperialist project of dominant nation-states, the U.S.’s post-9/11 exertion of power thus looks “like one of those bad horror movies, when they’re buried and then the hand comes out of the grave . . . but usually, there’s only a few minutes left in the movie” (Hardt, “An Interview” 141).

Indeed, among the achievements of Hardt and Negri’s *Empire* (2000) and its sequels, *Multitude* (2004) and *Commonwealth* (2009), is their transformation of the theoretical terrain, from one centered on globalization to one on *Empire*. Globalization’s inadequacy as such a mapping is that it fails to “center” anything, but rather stands in for a number of disparate observations and empiricisms. As Henwood observes, it refers on one hand to an “internationalization” that already existed, while on the other is used to refer to “everything bad that’s happened over the last decade or two” (145).

Responding to the question of what Empire “allows us to think” that the concept of globalization does not, Hardt and Negri argue:

globalization, especially in its economic guise, has often been conceived in quantitative terms – the increasing number, speed or distance of exchanges – rather than in qualitative terms and this has been an obstacle to understanding the real novelty of our contemporary situation. However, this may also be an indication of the limitation of the concept of globalization itself as the marker of our era. Many authors today, particularly on the Left, point out that globalization is nothing new or even that the quantity of global economic exchanges is lower than it was 50 or 100 years ago. This may be true from this limited perspective, but we think it is largely beside the point. We insist on the fact that what goes under the label ‘globalization’ is not merely an economic, financial or commercial phenomenon, but also and above all a political phenomenon. The political realm is where we most clearly recognize the qualitative shifts. (“Global Coliseum” 181)

In *Empire* and its successors, Hardt and Negri assemble their qualitative shifts into a narrative mapping of a global system much as did their postmodern predecessors, such as DeLillo, William Gaddis, and Thomas Pynchon. Their success demonstrates the primacy today of theory as the medium for large-scale cultural surveying. Yet, as my pairing of terms above suggests, to the extent that “Empire” and “terror” are competing descriptors, Hardt and Negri themselves are, in a sense, novelists. *Empire* and *Multitude* compete with the narratives under the heading “Terror,” which include the case put forth for the “War on Terror” and the interpretation of this event as a return or re-invention of U.S. imperialism, as shapers of language and sensibility. Indeed, Hardt and Negri’s work (as well as Negri’s separately authored writing, going back to his early *Marx Beyond Marx* and “The Constitution of Time”) puts the end of work thesis back to the forefront at the same time as work in the most advanced (i.e., machine-intensive) sectors of capitalism becomes most directly organized through communication, while working on writing and language as content.

This dissertation also attempts to use literature as a way of examining, through Marx's labor theory of value, the new era of capitalism. Hardt and Negri have been perhaps the preeminent philosophers of this regime, and I draw from their work a great deal. For studies of the current conditions, however, the view their work provides seems to me necessarily limited by their various rejections or calls for significant revisions of the law of value. In my use of other writers on political economy, such as Andre Gorz and George Caffentzis, I take the law of value as a kind of constant variable. In part, this method makes possible different analyses of the contemporary fate of living labor. In part, this method is also a necessary antidote to what I take to be a potential oversimplification in Hardt and Negri's analysis of the consequences of real subsumption when they equate the immeasurability of value production in the sense of the possibility of grasping and measuring it empirically, with immeasurability in some absolute sense. When Hardt and Negri cite the impossibility of separating work-time and life-time, or production and reproduction—usually with an example like the worker who solves a work-related problem while in the shower—what they have shown is simply the difficulty of separating the two spheres, rather than the nonexistence of the difference. What happens when that worker doesn't solve a problem in the shower, in large part because her job requires no problem-solving from her anyway? Is that worker producing, viz., producing value? What if there were a Maxwell's Demon in the shower with her, sorting the moments of value production from other moments? Moreover, Marxist analytical writing already has terms to describe such anecdotes. There is, in short, nothing new about capital drawing value from unwaged work.

## Implosion of the Writing Scene

An important foundation of the end of work rubric, supplementing the post-Bretton Woods, post-measure Empire of Hardt and Negri's analysis, is what Kittler calls the implosion of the writing scene: the invention of the microprocessor, or computer on a chip. This event ushered in the miniaturization and textualization of the workplace. Every positive task, as soon as it can be set down in an algorithm or in a computable process, can be programmed.<sup>2</sup> We can easily see the threat for living labor. If every positive task is imagined to be simulatable by a Turing Machine, all that remains is to build this machine and let it do all the work. As management theorist Peter Drucker argues, the only reason humans do a number of jobs they currently perform is that we simply haven't taken the time to program them. So, it seems, there are a lucky few performing tasks too complex for programming. And then there are a vast majority performing tasks that are so mind-numbingly simple and low-paying that the capitalist system does not bother to automate them. Increasingly, these are the jobs shipped out of the West. These jobs, though they seem to be at the bottom of the hierarchy, are necessary, because their organic composition of capital (the rate of constant capital to variable capital) is lower, which means they produce a lot of surplus value. They necessarily balance out the machinery of the West, the high composition that creates very little surplus value, but absorbs the excess surplus value from the low sectors, as the capitalist system maintains an average rate of profit. In my dissertation, I attempt to

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<sup>2</sup> This is not exactly true, as the claim is put forth by Caffentzis. Jack Copeland argues that this strong version of the Church-Turing thesis takes the claim too far. He writes, "Turing did not show that his machines can solve any problem that can be solved 'by instructions, explicitly stated rules, or procedures,' nor did he prove that the UTM 'can compute function that any computer, with any architecture, can compute' or perform any 'task for which there is a clear recipe composed of simple steps.' As previously explained, what he proved is that the UTM can carry out any task that any Turing machine can carry out" ("Computation" 10).

cover various sites along this spectrum, from the scale of the microprocessor and personal computer, and the digital flows of finance capital, impersonal delirious circuits of capital seemingly divorced from productivity, and on up to the global masses performing the tasks that create high levels of surplus value. At the same time, at this large scale, I will look at the question of the new machinic landscape, and its ability to organize people into the production of surplus value.

### **Robots and Typewriters**

Marc Laidlaw sets his 1985 novel *Dad's Nuke*—which loosely belongs to the cyberpunk genre and reads like a horror novel version of *The Jetsons*—in a highly automated futuristic enclave. The novel depicts a society that no longer requires the work of its citizens, at least not in order to produce or manufacture goods, or to interact with and create objects out of the material world. The needs of the technoburb are supplied by Doc Edison, a kind of technoscience version of a tribal chief, and the mysterious Cartel, which supplies its energy needs. Dad Johnson, the protagonist, wages a neighborhood one-upmanship battle of self-defense with a hated neighbor from across the street, "Jock" Smith, in a futuristic version of suburban lawn care competition. His wife, Connie, prepares meals called "insta-serves," while robots and other automatic devices perform housework, and Dad jacks into work in a virtual office from his upstairs study.

Early in the novel, we see that in addition to all the automation and technoscience, careful effort, much of it on the part of Doc Edison, has been put into manufacturing work for the citizens of this fortress society. When Dad, over his wife's protests, begs off golf with his son in order to work overtime on a Saturday, we soon learn just how unnecessary this work is.

I said I'm sorry, hon, but I can't get around to it. It's drudgery, but I'm under pressure to finish as soon as I can. Now five other guys are going to plug-in to sweat on this damn thing. What are they going to think if I decide to go golfing or swimming while they work overtime? [. . .]

Dad reminded himself that the lies were well justified: Doctor's orders. The era had long since passed when plugging-in was an economic necessity; there were only "pleasure" programs now. Doc Edison insisted, however, that Dad and the other men of the neighborhood plug-in regularly: the daily work pattern must not be altered if the nuclear family were to remain stable. "Take away a man's role as breadwinner and you take his authority," Doc had said once, and on that point Dad had to agree.

Upstairs, in his study, it was peaceful, the sun warm on his desk. He flipped the switch on the console, called up the job entry, and pulled on his working suit. With his eyes covered, his hands in the pads, he walked down a long featureless corridor lined with doors. The first one he came to had his name on it, but it was only a decoy door, programmed to detain anyone who came looking for him without authorization. He went past it to another labeled CENTRAL FILES.

Inside, there were several rows of metal shelves, and past them a door labeled Men. He went through that, took a step, fell.

Howling his laughter, he plunged down the slick red slide into a frenetic jungle of color, light, and sound. His body changed as he accelerated. Balls of lightning showed a much younger William D. Johnson, his stomach firm and lightly haired, his naked legs slim and fluent with muscle. Suddenly the slide ended in the midst of an electric blue vapor, and he flew into space, flapping powerful wings. (Laidlaw 50-51)

This scene allegorically depicts the obsolescence of work, as it is narrowly defined under capitalism, but disguised in order to maintain the same social relationships. But the particular solution in the novel, based on knowledge work, parodies our own so-called solution to the problems raised by automation in capitalist society. The fervor for knowledge work and the new economy as suppliers of jobs displaced by machine labor is revealed here as a gigantic put-on in which no one really believes. Laidlaw never describes just what it is Dad and the other men of the enclave might be said to be producing. No one ever questions what they're doing. Instead, we get fetishized images

of work: Dad trudging up to his home office to work at a personal computer, Dad fooling around with a sexy subroutine "simusecretary" on a break in his virtual office, while the scents of Scotch and expensive cologne fill the air.

The most interesting of such scenes occurs when Dad comes around to check on how his son Peter John, or PJ, is doing with a memo he assigned him. The memo is to be sent to the Whelk Lodge in his defense after an incident at Jock Smith's backyard missile launch party. PJ, at work writing a note to his Dad calling him an asshole when he's interrupted, turns out to be quite the typist. Dad remarks: "You've got to have perfect accuracy and you've got to type at least 110 words a minute, not counting glossary strings. You've got to have it all down, kid, and you have to get it while you're young. Then . . . then you can really go somewhere" (27). But where exactly will PJ go? He cannot move to another city, and from all we know from the novel the only people who work are Doc Edison and the Cartel man Ashenwriste. Moreover, even if we allowed the idea that there is work somewhere in the enclave that he could do, what would typing have to do with it? In the world of knowledge work in the twentieth century, typists were largely displaced by the microelectronic revolution and the appearance of computers in the workplace. The thought that a character will go somewhere when he's older because he can type fast is patently absurd, as typing has always been feminized, secretarial work. And even if memo writing is still a big part of business in the twenty-first century, no one is going places because he or she can type them up quickly. The worst possibility is that Dad *is* right and you can get places with fast typing, as that development would suggest an even further denigration of the work of clerks whose more skilled labor was replaced by deskilled labor when their information work was

replaced by typing and filing. If typing were to seem skilled labor now, what is the deskilled work? During his first term in office, Bill Clinton called for worker “retraining” to help displaced industrial workers become what his Secretary of Labor Robert Reich, in his 1992 book *The Work of Nations: Preparing Ourselves for 21<sup>st</sup>-Century Capitalism*, called “symbolic analysts.” Yet, 35 million Americans at the time read below the ninth grade level, and 20 million read below the fifth grade level (Rifkin 36). So from where does value come in *Dad’s Nuke*? How can this community maintain its capitalist relations if no new capital is being accumulated? If no one is actually working, from where do their wages come? When PJ runs off and escapes the fortress enclave, a puzzled Dad wonders where the roads out lead: to “robot plants?” (80).

### **Automation and the Labor Theory of Value**

At the beginning of “Robots and Capitalism,” Tessa Morris-Suzuki describes a popular image of the time (the essay originally appeared in 1984): “a worker, typically a highly-skilled spray painter, guiding the arm of a robot through the motions of a precise and complete task” (13). The robot records this motion and then can repeat it without end, having stored the transmitted skill in its memory. This image, as Morris-Suzuki argues, “symbolizes a crucial issue for our understanding of the present nature and future destiny of the capitalist system” by capturing the moment when living labor is removed from the labor process (13). At such a moment this part of the labor process ceases to create value, according to the labor theory of value. The “end of work” is thus a phrase that stands for widespread structural unemployment, usually caused by the introduction of technology. This is a form of what John Maynard Keynes warned of “technological unemployment” in his *The General Theory of Employment, Interest, and Money*. It also stands for the key contradiction of the capitalist system: it is in the

individual capitalist's interest to replace living labor with machines, but the system as a whole cannot create value, and thus capital, without living labor.

The end of work by this meaning thus goes back at least to early debates about mass loss of jobs caused by advances in mechanized labor such as the assembly line in the 1920s, when consumer credit and an advertising assault on “homemade” products aimed at increasing consumer spending. For instance, by the mid-1920s, automobile production required less than 20% of the worker-hours required a decade earlier (Rifkin 18). As the number of unemployed grew from fewer than 1 million in 1929 to 15 million in 1933 (Rifkin 29), organized labor called for reduced work hours in order to “share the work” that remained as machine labor in manufacturing increased output while drastically cutting labor hours. These early concerns with the end of work actually led to at least one corporation's experimenting with shorter work weeks for its employees in order to wage more workers, as well as to Congress's passage of a bill mandating a 30-hour work week. The New Deal, which marked the beginning of the Keynesian welfare state, emerges as Roosevelt's response to this bill. “Share the work” becomes “right to work.” Today, the phrase “right to work” has been co-opted by the political right. Ironically, organized labor gave up the “share the work” 30-hour work week for the “right to work” New Deal in return for protections for union organizing. Today “right to work” laws prevent such organizing (and, in fact, labor unions lost much of these protections in the 1940s, first during World War II and then with the Taft-Hartley Act in 1948, as well as from the fact that further advances in machinery and automation continue to press the original weight of technological unemployment on them.). Here, emphasis shifts from distribution of the total pool of work hours now reduced by

machine labor, to creation of new waged work. This call for creation of jobs as response to technological displacement has continued to dominate mainstream political discourse on the left ever since.

In the 1940s and 50s, the field of cybernetics and a more intense version of automation emerged. In 1946, an issue of *Fortune* speculated on a future of factories without workers, and one year later the word “automation” was used for the first time (Rifkin 66). The ten-year period from 1945-55 saw 43,000 worker strikes, which, Jeremy Rifkin argues, spurred a “turn to automation” (67). In the next seven years, 1.5 million manufacturing jobs disappeared. It is this period that gave us the computer, as work at MIT in the 1950s on the first computers was funded by the call for numerical control in the factories, a decisive step in capital’s evolution of separating worker from tool. During this period, Ford, Chrysler, and GM together built twenty-five “new, more automated plants in the suburbs surrounding Detroit” as part of a strategy of automation and suburbanization designed to cripple local unions (Rifkin 74-75). Norbert Wiener, the godfather of cybernetics, warned that the automated machine was “precise economic equivalent of slave labor” (78). Automation, Rifkin argues, destroyed the strike. This may have been acknowledged as such by organized labor in the mid-1960s when they agreed to give up struggles over control of the production process in return for retraining.

The next phase of the technological evolution of capitalism is more complex. The basic components of post-Fordism include the failure or surpassing of Keynesian policies, the end of the gold standard, the rise of new social movements and worker struggles (which led to capital restructuring and rising energy prices), the advancement

of IT, the rise of transnational corporations, the increasing globalization of labor, textualization of work, further advances in automation such as robots and lights-out factories, the emergence of immaterial production and affective labor, and perhaps most importantly the micro-electronic revolution. Moreover, a crucial consequence of these material changes is the possible demise of the labor theory of value, as suggested by Antonio Negri. Such a demise would suggest a dialectical leap as the piling-up of moments of automation led to a qualitative shift.

In *Paths to Paradise*, Andre Gorz dates the beginning of the present crisis of capital investment and structural unemployment to about 1960, when capitalism lost control of its own development. This was due to two main factors. First, labor supplies were exhausted, which ruled out extensive growth and forced increases in the ratio of machinery to labor. Second, technological progress had leveled off, which, combined with the need for increases of machinery, would mean a sharp rise in the organic composition of capital, and thus a falling marginal rate of productivity. These two events work together in a feedback loop, as the increasing organic composition of capital means more manufacture of machines, which requires highly skilled labor, and skilled labor's struggles become more effective. These demands of labor lead to increased need for machinery, which forces capital to increase machinery and develop technologies on a sped-up timetable, which is expensive.

In the late 1970s and 1980s, an hour of computer labor became cheaper than an hour of human labor (Liu 106). Downsizing took off at the start of the 1980s, as the U.S. recession gave rise to IT and layoffs (Liu 36). The U.S. invested one trillion dollars into information technology in the 1980s (Rifkin 91). Of the workers not laid off, an

increasing percentage used computers on the job—from 64 to 81% in this period, according to Alan Liu (106). In Liu’s argument, the original plan for IT was to extend the automation paradigm; but the process also “informed” work. This means, Liu argues, there is now a “thick wrapping of second-order information” around our basic work interface of acting on matter (Liu 107). Indeed, studies in the early 1990s showed that workers in the global south were more likely than workers in Europe and the U.S. to be able to turn skills into the ability to act on matter.

The labor process and the nature of the tasks performed in work develop the capacity to engage in autonomous activities in an ever smaller number of employees. That capacity is greater among workers whose origins are in pre-industrial countries (particularly among workers in the building sector and civil engineering) than among employees with a technical or multiskilled training. The studies by Horst Kern and Michael Schumann contain illuminating data on this question: technical skills and qualifications do not give rise to a qualified specialist ability; workers do not have capacities which they can “objectify in specific performances.” This remark applies, *a fortiori*, to intellectual workers, computerized jobs and service personnel. This inability of the computerized worker to do work as “sensuous-practical activities”<sup>3</sup> or the creation of “non-alienated objects, to produce society (work-as-poiesis) thus exists as a complementary phenomenon to Liu’s “thick wrapping of second-order information” (Gorz, *Capitalism, Socialism, Ecology* 57). Richard Lanham has described this shift as one from an economy within which information was a way of looking at the material “stuff” to an economy in which information is the stuff itself. When we work on information, however, what value is being produced, and what products are being

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<sup>3</sup> Gorz takes this phrase from Oskar Negt.

produced? The case is similar to that of one of Shelley Jackson's narrators in *Patchwork Girl*: an information worker who speculates on where he or she exists in the information when it's in digital form.

## **Immaterial Labor and the Labor Theory of Value**

### **Hardt and Negri**

Hardt and Negri argue that today capitalist production is dominated by a new hegemonic form, immaterial or communicative-affective labor, which in *Commonwealth* they have taken to calling biopolitical labor. This form of labor replaces the industrial labor hegemonic when Marx analyzed capitalism, and its hegemony is defined by place in a hierarchy of labor forms, not in terms of quantity of laborers. I will discuss immaterial labor in greater detail in chapter M.

In a section of *Multitude* titled "Excursus 1: Method: In Marx's Footsteps," they explain this theory in greater detail, highlighting its consequences for Marx's labor theory of value. Marx, following Adam Smith, saw labor as the source of value. Through the real abstraction of social or abstract labor, Marx solved the problem of measuring different quantities and qualities of labor. Because capitalism is a "socially connected form of production," all value comes from an interconnected whole, and for this reason different labors are commensurable (144). Marx then posed the labor-value relation in terms of corresponding quantities of labor and value. However, today Hardt and Negri argue, this "makes no sense" (145). The reason lies in the different isomorphism. Historical periods, they explain, are characterized by common forms of thought, called isomorphisms. In our period, the disciplinary institution (e.g., factory, barracks, school) has given way to the network (e.g., post-blitzkrieg military organization, transnational corporate forms).

Marx's concept of abstract social labor was based on the disciplinary regime of the factory. In Marx's time, all production had a uniform temporality. Today's control regime defined, by mobility and flexibility, contains many different temporalities of production. In postmodernism, the regular rhythms of disciplinary institutions have given way to a new form of organization that blurs these previously separated temporalities. Hardt and Negri cite examples at different ends of the labor hierarchy. First, Microsoft makes the office like home to encourage its employees to stay on its campus and work longer, thus blurring work-time and leisure-time. Second, a low-wage casual laborer, forced to work multiple jobs, juggles various working days. Moving to a global scale would give us other temporalities: that of industrial conditions similar to those described in Marx's chapter on the working day, and that of no work. We could also add the temporality of domestic work, the labor of reproduction, which increasingly takes place in the global south or is performed by emigrants from the southern hemisphere. Not only, however, does the existence of these multiple times (or perhaps what Virilio calls a "hierarchy of speeds"<sup>4</sup>) create the need for such revision. In addition to this explosion of temporalities of work, we have an implosion in the individual worker's time, as living and working, time of production and time of reproduction, become indistinguishable. When labor becomes biopolitical, it creates social life itself.

While labor remains the source of value, as a consequence of labor's new temporality (defined perhaps by multiplication of temporalities), immaterial—or

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<sup>4</sup> See *Speed and Politics*. Virilio argues that economic liberalism is "only a liberal pluralism of the order of speeds of penetration." He emphasizes this point: "Let's make no mistake: whether it's the drop-outs, the beat generation, automobile drivers, migrant workers, tourists, olympic champions or travel agents, the military-industrial democracies have made every social category, without distinction, into *unknown soldiers of the order of speeds*—speeds whose hierarchy is controlled more and more each day by the State..." (119). One could argue that Virilio is talking about the creation of forms of social life, only here ordered first by the military.

biopolitical—production can no longer be quantified in fixed units of time, as Marx was able to do. Hardt and Negri argue, “we have to revise Marx’s notion of the relation between labor and value in capitalist production” (146). The hegemony of immaterial production requires a new system of measurement (or a system that doesn’t measure) or new temporality, in order to understand our contemporary reality. Key here is that in addition to the different isomorphism and temporality just outlined, Hardt and Negri cite a change in what gets produced as an additional reason Marx’s law of value cannot stand. Immaterial labor primarily produces “ideas, images, knowledges, communication, cooperation, and affective relations” (146). Whereas the material production of industrial labor created the means of social life in the form of television sets and automobiles and so forth, immaterial production creates, in Hardt and Negri’s words, “social life itself” (146). Based on this production—which seems on a higher order than the production of mere commodities—and the blurring of temporalities, Hardt and Negri conclude that labor exceeds capital, living and producing are indistinguishable, and therefore immaterial labor is excessive to capital and immeasurable. If we remember that Marx’s law of value required a difference between necessary and surplus labor, then (according to the argument) when this difference is reversed the law of value is burst. Yet, labor is still the source of value and capitalism requires its exploitation; if capitalism exists so does exploitation. And what is exploitation under the capitalist system if not the organized theft of time in the form of surplus value?

Hardt and Negri do not necessarily get rid of the concept of surplus value. Instead they locate it in a different arrangement. A new theory of the relation between value and labor today should be, according to Hardt and Negri, based on the common, “which

appears at both ends of immaterial production, as presupposition and result” (148). In contrast to industrial production, immaterial labor produces through collaboration without the need for the capitalist to “[call] workers to the factory” (147). Living itself is production, and capital is an apparatus of capture. In this situation, the standard economic measures of production and circulation must be re-thought to account for forms of production that occur outside of wage labor.

Marx wrote that production creates not only an object for its subject, but also a subject for its object. Workers' subjectivity in Marx's time was forged in antagonism to the experience of exploitation. As the fourth point of the “Excursus” on Marx, Hardt and Negri argue for a new subjectivity based on the experience of the poor. This figure highlights the contradictory relation of production to a world of the value as the poor are both excluded from wealth and included in the circuits of social production. Living labor as poverty thus has a dual character: absolute poverty deprived of wealth, and general possibility, thus the source of wealth. The poor, then, seem to represent the possibility of “sensuous-practical activities” and the production of non-alienated objects, or society. This is in contrast to the alienated objects of stored dead labor rotting the machinic landscape of the U.S. and other Western countries, only to be transferred to the global South and East Asia for final burial and resurrection in new forms of exploitable agency.

### **Gorz**

Proceeding from a position that the law of value is axiomatic as long as we labor under the capitalist mode of production, other Marxist writers have come to different conclusions about the consequences of the new regime of immaterial labor. By understanding immaterial production as production, Hardt and Negri treat the work or activity of post-industrial actors as productive labor, or as the production of

commodities, even if it is the production of knowledge, ideas, and images. Such production creates new collaborations, new forms of socialization, new languages—and indeed all of this work is networked or collaborative for them. The problem, then, is to construct a theory of value that can accurately explain where and how value is produced. In contrast, Gorz uses the law of value to understand immaterial production as incapable of producing enough value to expand capital, because it does not require enough labor content to accumulate capital. Service work, under Gorz’s theory, does not produce value, because it does not lead to the accumulation of capital. Instead, it provides a way for capital to re-distribute revenue: but revenue is not profit (i.e., capital). This way of proceeding leads to a much different perspective on the status of post-industrial capitalism.

Hardt and Negri’s work (as well as that of Virno, Marazzi, etc.) has provided a kind of language or vocabulary used to talk about our post-Fordist era, and I include them under my end of work umbrella, in part because they argue that the labor theory of value is over. It’s perhaps only Negri who claims this, though much of Hardt and Negri’s work is based on this argument in Negri’s work, particularly in *Marx Beyond Marx* and “The Constitution of Time.” Indeed, a key theme of end of work writing is a kind of wavering about the place of the labor theory of value in attempts to understand current conditions. Negri wrote “The Constitution of Time” in the early 1980s, but in the 1990s, in *The Politics of Subversion*, he advocated the law of value, calling only for a kind of re-thinking of it. One of the key premises of Hardt and Negri’s politics is the notion that all time today is productive, and without the distinction between time of production and time of reproduction, a law of value cannot hold up.

Yet, in key ways they contradict the theories I summarized in the preceding paragraph. We can see both aspects in their concept of immaterial labor, which they use to describe labor processes that are not themselves immaterial but that produce no material object. They include under immaterial labor service work (primarily female labor), such as that performed by nurses; knowledge work, such as that performed by the symbolic analysts Reich describes in *Work of Nations*, or in the information work that allows a seed to be branded; and the production of affects, as in the culture industry, where the material item is only a means of access to information. Hardt and Negri stress that immaterial labor is dominant not in the sense of a quantity of jobs (this is where Rifkin sees the problem with Reich's argument: there is no way that a new sector of information workers can absorb all the laborers displaced from manufacturing work), but in the sense that it is the top layer of production that transforms or reorders all other areas of production (and thus reproduction). One other nuance to this concept, which perhaps interests me the most, is that it appears to include labor of varying ability to produce commodities for profit. This may be what allows Hardt and Negri to overlook the law of value; or perhaps the failure to have a law of value is what leads them to this concept. The problem regarding some of the work that fits the definition of immaterial labor is that it does not produce more capital, as Gorz argues in *Paths to Paradise*. The production of an exercise DVD, for instance, requires little labor or capital and thus does not provide a cycle of "intensive accumulation." This is the production of revenue, not capital, and thus does not expand capital. And we know capitalism must continually expand in order to ward off its own limits. There has to be a gain. Immaterial labor thus

is crucial to the optimism in Hardt and Negri's politics, but also glosses over this other potentially joyous interpretation.

For Gorz, the end of work is already underway, caused by a microelectronic revolution that, as he argues in *Paths to Paradise*, makes impossible new cycles of capitalist accumulation. Microelectronics do not merely reduce the value of fixed capital; they reduce the mass of fixed capital necessary to produce an ever-increasing amount of commodities. As long as this technological transformation continues, argues Gorz, the revival of investment cannot revive growth and labor time cannot be the measure of exchange value. In order to fully grasp this point, we must remember once again that value is social. Capitalism—as George Caffentzis so eloquently phrased it—is not a system for producing things, but for stealing time. That's why lights-out factories run by robots cannot ever happen under capitalism. Or, if it can, it must be balanced out by large amounts of surplus labor produced in near-slave conditions elsewhere on the globe. In this view, the reason jobs exist that have not been programmed or automated, as Drucker argues, is not because we cannot do so nor because the capitalist finds it cheaper not to; rather it is because it is necessary that someone provides the system with value that cannot come from machines. We will come back to this tension in a later chapter, as it still very much remains undecided *who* exactly supplies the value in the current capitalist system.

Gorz argues that automation under the regime of micro-electronics spells the death of capitalism, at least as we know it, because capitalism requires that surplus value be turned into more capital. The micro-electronic revolution does not and cannot, in his argument, make that intensive accumulation possible. He bases this claim in part

on studies that show how capitalist investment in information technologies has reduced jobs, not created them. We have also gone past Keynesian policies that created jobs with public money and corporate taxes when private enterprise eliminated them (though perhaps one could argue that increased incarceration could be a form of Keynesian planning).

If the end of work is well underway, what new mechanisms or practices have sprung up to ward off the limits of capital? For Gorz, a number of practices that fall under the category of immaterial labor are actually disguises for the abolition of work. Some of the ways in which capital disguises the abolition of work, according to Gorz, are a higher school-leaving age, paid training schemes and higher education courses "clearly lacking career outlets," and extended conscription. We could also add incarceration—increasing since the early 1970s, or around the time the end of work thesis and the micro-electronic revolution get going. Moreover, processes of autoproduction and autosurveillance, as well as consumption work—forms of immaterial labor—demonstrate the extension of the sphere of capitalist production into reproduction.

Gorz writes in the first page of *Paths to Paradise*:

Those who propose a fundamentally different society can no longer be condemned in the name of realism. On the contrary, realism now consists of acknowledging that 'industrialism' has reached a stage where it can go no further, blocked by obstacles of its own making. If nothing can go on as before, it is because of all that has gone on before. (1)

The "crisis of industrialism" (a term Gorz takes from Alvin Toffler) and our failure to acknowledge its end is what gives us post-industrialism. This is also what Hardt and Negri are talking about. Neither writer sees post-industrialism in the kind of post-

industrial fantasy of Toyatism and information workers that is a popular way to think about it. Gorz dates the crisis to the beginning of the 1960s. What crisis? Structural unemployment, rising amounts of automation, hunger, poverty, and so forth; but also the growing inability of capital to control its own effects. For instance (and, as we will see in chapter XXL, already anticipated in early times at the beginning of industrialism and brought to life vividly by the writing of Frank Norris), Gorz argues that the present growth of capital (1980s) is not a temporary slowdown or interruption of growth, but a “consequence” of growth. Indeed, Gorz describes the economic machinery as “installed” by a capitalism that nevertheless can no longer “operate” it. Gorz traces part of this problem to the logic of Keynesianism. Keynesian policies act as external regulations. For instance, taxing company profits, and re-distributing “social expenditure,” is a method that wards off over-accumulation, or the expansion of capital past the point of profitable investment.

So, capitalism loses control of its own effects—or, as Gorz puts it, its own “development”—when two things happened. First, labor supplies were exhausted. Second, technological progress leveled off. These two events or conditions interact or feedback into each other. An exhaustion of labor supplies means that extensive growth is impossible, forcing capital toward intensive growth, through the adoption of more machinery to increase the relative productivity of labor. But when the adoption of machinery becomes necessary without long-term planning, and the problem is exacerbated by technological progress being stalled, the result is a spike in the organic composition of capital (i.e., the ratio of fixed or constant capital to variable capital). We should remember here the Marxist theory that struggle leads to innovation. Without

resistance, capital would be perfectly content to continue extracting absolute surplus value through extensive growth (e.g., extending the working day, increasing its labor supply). Furthermore, a necessary addition of machinery or technological innovation requires skilled and thus, more expensive, labor. As Gorz writes:

if society does not use micro-electronics to extend the sphere of autonomy and self-management and thus to overcome the crisis by breaking with capital, then capital will “spontaneously” turn towards a new form of industrialisation which . . . will mark the final triumph in the reign of commodities. (24)

This brings us back to immaterial production. Instead of producing autonomy, current use of micro-electronics produces consumers. And it does so, according to Gorz, by transferring the production of consumers to consumers themselves. For example, training and education are transferred to computer programs, health care is transferred to “dialogue with a computer” (WebMD figures here as a new kind of ELIZA).<sup>5</sup> Gorz calls this kind of production “non-material” because the product is immaterial information or communication (26). More importantly, Gorz characterizes such production as the extension of production into reproduction. The cost of labor’s reproduction—training, socialization—is shifted to individuals as a consequence, “individuals can be made to train themselves, maintain themselves and ‘produce’ themselves to fit a social norm which is pre-programmed by the autoproduction technology that they use. The desire for autonomy and free time is exploited and turned against its subject” (27). One form this training can take is what Ursula Huws calls “consumption work.” For example, when a bank teller is replaced by an ATM, waged labor time is replaced by unwaged ATM user time.

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<sup>5</sup> A recent study shows one group of workers whose individuals are working fewer hours is doctors. See Staiger, Auerbach, and Buerhaus, “Trends in Work Hours of Physicians in the United States.”

Whereas Hardt and Negri might see the production of forms of sociality as representations of the common wealth, or of our social being encroaching on production, Gorz emphasizes the way capital turns such processes back on the subject. In other words, this is the especially sorry state of affairs in real subsumption. The result is not so much that production and reproduction have become blurred as it is the productive sphere colonizes the reproductive sphere, commanding it more directly. Hardt and Negri are in agreement with Gorz on this move of production into the sphere of reproduction, but not on the consequences of this invasion.

The resultant problem for capital, as Gorz sees it, is that such production requires very little labor and very little capital. As such it requires no cycle of intensive accumulation. It produces revenue, not profit. To explain this further: if such production only requires a little bit of labor, then it cannot produce large amounts of surplus value. If such production requires only a little constant capital, then the value realized from the sale of commodities will not be invested in further capital in the form of machinery and technology that expand capital. Instead, micro-electronics, Gorz argues, “cannot, in any circumstances, lead to a new, long cycle of capitalist accumulation” (29). He reasons that micro-electronics do not merely reduce fixed capital’s value per amount of output; they reduce fixed capital’s “total mass.” Gorz sees two possible outcomes that could follow. First, market laws prevail and products of automation drastically fall in price. Permanently employed workers become a small class of workers, and unemployment reaches high levels, a range Gorz pegs at 30-50%. Second, monopolies prevent price-cutting and thus create large revenues, which will have to be re-distributed. Otherwise,

commodities cannot be purchased and the economy will collapse: “consumption henceforth turns into a sort of social duty on a par with remunerative work” (32).

Gorz makes these predictions in the 1980s. The current conditions seem to validate in part both possible outcomes. On the one hand, the unemployment figures are moving that way, perhaps not yet to those levels, but one wonders how much new accounting procedures or the growth of flexible labor and underemployment mask that growth. On the other hand, monopolies have in fact created huge revenues. Microsoft, the most recognizable company of the new economy and the one that benefited most from the growth of micro-electronics, had a famous antitrust lawsuit aimed at it, and Bill Gates has been on top ten lists of richest individuals for years. Meanwhile, everyone can recognize Bush’s post-9/11 mandate to get back at “evildoers” through shopping as realizing Gorz’s claim about consumption.

The state of affairs predicted by Gorz is based in large part on the micro-electronic revolution resulting in the production of “non-material” commodities. By this term, he means the material character is unimportant, not that it isn’t a material item. What is important about such commodities is their immaterial information. The use of such products or the content of such products marks an extension of capitalist production into the sphere of reproduction, where costs of education and training, health care, and socialization can be passed onto consumers themselves. Instead of such costs being paid for through taxes, for instance, they are now paid for through the creation of another market. Wages can fall without dragging down consumption with them. This means that Gorz also sees production and reproduction as blurred, but for him reproduction is still a recognizable function. It’s just been made productive. Gorz’s spin

here is a kind of dark side of Toffler's "prosumption" (which Gorz cites). More importantly, Gorz's analysis provides a way to use the law of value to understand the workings of twenty-first-century capitalism in a way that Hardt and Negri's claims about the immeasurability gloss over.

### **Behind the Backs**

A key tenet of Hardt and Negri's arguments about immaterial labor, the multitude as the key political figure today, and their death of the law of value, is the observation that capital operates under conditions of real subsumption. Consequently, they argue that all of life is production, as work-time and life-time, spheres of production and reproduction have blurred together. For example, when Gaddis's J R uses a payphone at school to build his paper empire, he works in the blur between reproduction (training at school to enter the workforce) and production (working for the J R Corp.). When this is the situation, they argue, the law of value can no longer hold, because the means to measure is lost. I wonder, though: why should the law of value need to be thrown out?

Hardt and Negri's arguments about the immeasurability of biopolitical production and the consequences of real subsumption depend on Negri's earlier analyses of Marx's discussions of value in the first volume of *Capital* and especially the *Grundrisse*. In the following passage, from "The Constitution of Time," Negri reads the first chapter of the first volume of *Capital*:

The first aporia concerns the definition of the temporal unit of measure itself. This unit of measure is an abstract element, a quantity of simple necessary labour that is established 'by a social process that goes on behind the backs of the producers' (ibid., p. 135). A social process behind the backs of, that is, external—but to what? External to production. So 'external' can only be understood with a reference to use-value. The measure of exchange-value is determined from outside, that is by temporal quantities founded on use-value, determined immediately. (24)

From the phrase “behind the backs,” Negri gets “external,” and then from external he leaps to use-value. From this “immediacy,” Negri names four aporias. He does all of this in less than a page. Backing up a bit and looking at the original passage from Marx that Negri quotes from above, I arrive at a different reading of the “behind the backs” argument. In this section of *Capital*, Marx endeavors to explain the concept of simple average labor:

A commodity may be the outcome of the most complicated labour, but through its value it is posited as equal to the product of simple labour, hence it represents only a specific quantity of simple labour. The various proportions in which different kinds of labour are reduced to simple labour as their unit of measurement are established by a social process that goes on behind the backs of the producers. (135)

Here Marx explains that the determination of simple average labor takes place on a scale too vast or a level of complexity too great for individual producers to perceive locally. They would have to be capable of existing on multiple spatial scales and in multiple temporalities of production at once. At this point of the chapter on the commodity, Marx has already dealt with two possible objections to his argument that the exchange relation of different concrete commodities is reducible to a “third thing” (labor power): the relativist argument that if a commodity’s value equals the labor required to produce it, then the lazier or more unskilled the worker the more valuable the commodity (129); and, which the above quote follows, the argument that more complex labor could not be equal to simple labor (135). Marx answers each objection by reminding us that production is a larger social process (just as Hardt and Negri point out in *Multitude*’s “Excursus” on Marx’s method). “Behind the backs of the producers” interactions take place between various industries and exchanges, different speeds and intensifications, different organic compositions of capital—an entire social and technical

division of labor. Indeed, Marx makes this clear in his response to the objection that idle laborers would produce the most value according to his definition, in which he explains why a socially average time is required to produce a commodity that determines its value, not the individual time of the worker:

The value of a commodity would therefore remain constant, if the labour-time required for its production also remained constant. But the latter changes with every variation in the productivity of labour. This is determined by a wide range of circumstances; it is determined amongst other things by the workers' average degree of skill, the level of development of science and its technological application, the social organization of the process of production, the extent and effectiveness of the means of production, and the conditions found in the natural environment. (130)

This is what takes place “behind the backs of the producers,” and we can see why it’s behind their backs: no individual producer could keep all of this complex interaction in front of him. “Who measures whom” was thus always a problem that Marx solved with the real abstractions of socially average production and the average rate of profit.

Negri writes a few pages later that “[o]nly when the working day becomes a global flow (and therefore conceivable at the level of real subsumption), only then is the aporia removed and time-as-measure has no need to fix its foundations outside the productive circuit” (26-27). But the aporia of time-as-measure does not exist unless we grant Negri that time-as-measure, or the concept of simple average labor, depends on use-values that are “external to production.” Without this basis, Negri’s argument for the complete merger (or “flattening” together) of use-value and exchange-value does not hold. The concept of time-as-measure would continue. In other words, “immeasurable” may be better understood as referring to the impossibility of practically making such a measure rather than a revision of our regime of production such that the law of value no longer holds and labor has become such that it is an immeasurable and irreversible process.

One can grant that time of production and time of reproduction have become indistinguishable in some ways under current conditions of real subsumption, but this may mean other things entirely.

Thus, Hardt and Negri's call to abandon Marx's law of value for a new one is problematic. Instead of using Marx's law of value as a framework for understanding the new forms of production and their consequences, they insist on the law of value's inadequacy. This direction may be dubious. For now, I will name two problems. First, they turn the difficulty of measure when work-time and life-time lose their clear division under the industrial rhythms of production into a theory that these times are in reality inseparable. Second, they lose the power of abstraction in Marx's theory, its ability to show how these different parts inter-relate. Another way to proceed is to use Marx's law of value in order to understand the inter-relatedness of the forms of production and reproduction today, as well as their consequences.

### **Chapter Overview**

Chapter two sets the context for the subsequent four chapters. This chapter is a summing up and a re-reading of a body of literature that was once considered perhaps the preeminent form of literature for the mapping of capitalism and technology. However, critics soon considered it formulaic, and the subgenre was abandoned by even its most prominent writers. I argue that cyberpunk demonstrates the post-Fordist empirical realization of Marx's "Fragment on Machines." In contrast to SF criticism that has focused on political ideologies of cyberpunk novels, in chapter two I consider cyberpunk writing primarily as anxious recording in what Kittler calls writing-down systems, taking down this post-Fordist scene. This is the content of cyberpunk's form, which until now has been written by critics as Raymond Chandler fused with

“mirrorshades.” This approach to cyberpunk tells us something about the nature of work and its organization today—though it does so by considering only those workers in the high-tech West. Even so, this is the necessary starting point for my study, which attempts to map the working of the labor theory of value by looking at its workings at various skills. This first stage or scene provides an overview of not only post-Fordism, but two key theoretical interventions for this project: Italian marxist writing of the *operaismo* and *autonomia* movements, and literary-critical attempts to connect high technology to the global working of the capitalist system.

My next four chapters then develop a cartography of this changing work scene and take up the task of mapping out a theory of value across various scales. I do so by borrowing the organizational scheme of Rem Koolhaas’s monumental book, *S,M,L,XL*, as I analyze literary representations of different scenes of production of value and possibilities of subjective cooperation and communication. In this way, I analyze how literature has represented the fate of living labor in the post-Bretton Woods era or of the age of capitalism’s computerization. Each of the following four chapters focuses on a different scale.

Chapter three, or **XS**, revises the common critical observation that William Gaddis’s *J R* (1975) is about money in its free-floating post-Bretton Woods life. I argue that *J R*’s content represents an earlier MC phase of capital, but formally enacts an emergent system of money as high finance. At the same time, a competing logic of the form emerges, figuring the productive forces of computing and the general intellect. *J R*’s double optic shows how security is the crucial factor in determining what Marx calls the “money subject,” while its logical successor, *A Frolic of His Own* (1994), extends this

insight to conspiracies of professions, most notably the profession of law and its vast writing machine that today revises and reorganizes conceptions of labor, raw material, and property, thereby, in effect, recognizing the hegemony of immaterial labor.

In this chapter, I thus start out on the small scale of Gaddis's immaterial circulation of talk, text, and exchange values. Paradoxically, perhaps, everything happens from this material nothingness. The computer's miniaturization leads to the dominance of the software industry, and makes possible the seeming weightlessness of the transnational corporation, whose employees can communicate with each other and work from any site any time with miniaturized computers, telephones, and other communicating devices. In the time between the publications of these two novels, knowledge work becomes prominent, leading up the so-called "new economy." The discourse of the new economy not only includes talk about "overthrow of matter" from such popularizers as George Gilder, Alan Greenspan, and Ronald Reagan. It also includes earnest discussions about new sources of value production that appear to overthrow older paradigms, such as Marx's law of value. The young entrepreneur J R prefigures such contemporary luminaries as NYU accounting professor Baruch Lev, who argues that accounting is "too fixated" on the transaction, failing to realize, for instance, the value produced by brands or by the good will produced "when a drug passes its clinical tests" (Henwood 20). Information becomes synonymous with capital in this period: and yet in the background, in the content of the description of scenes in Gaddis's *J R*, there lurks material: weighty industrial sites from an earlier phase of capital, the massive amounts of fiber optic cable and plastic housing the miniature devices of the new economy, and the flows of energy required to sustain the hallucination. The challenge of this chapter,

then, is to examine the emergence of such new methods of value production as finance capital, information, and software writing. Just as their weightlessness is an illusion, so perhaps is their ability to create value. And yet, their effects are real.

Chapter four, or **M**, is medium size, my object scale moving from the machinic flow of information to the human body in its interaction with this environment of software, but also primarily as the medium through which humans transform the world. I show how Shelley Jackson's second-generation hypertext *Patchwork Girl* (1995) works as an allegory of the birth of a new kind of worker as biomedica that remediates the now-dissolved "human motor" of the industrial worker, but which also demonstrates a blurring of productive and reproductive spheres, such that the work produced by this worker may not produce value or expand capital. The body as a site of living labor is a medium in the process of a great remediation that has perhaps already taken place or is taking place. A key tenet of the end of work thesis is that the body has disappeared. The large-scale automation of industrial production has resulted in what Anson Rabinbach suggests is the end of the "work-centered society." Rabinbach argues that a future of work not "dominated by human labor power" is one in which work is no longer central to our participation in or understanding of the world. In other words, then, the loss of body results in the loss of work. The "human motor" that is the subject of Rabinbach's work was a system of representations used to discursively organize the material body. We have now lost that system.

With Rabinbach's study, I set up two problems, or questions to be answered. First, is the loss of industrial labor really the loss of the body-as-producer? Indeed, one commentator on the new media machines compares them to the industrial machines of

the factory. Thierry Bardini, after criticizing George Landow's definition of hypertext for neglecting the interface as a crucial component, makes a similar point as that in my reading of Kittler's software essays: "Nothing prevents *a priori* the computer from participating in the ongoing evolution of human beings, in the way that human tools have done for long time. . . .[yet] So far, the personal interface has remained a marking interface. Typing and clicking is marking, indexing, punching a hole" ("Hypertext" 259). Or, if the "human motor" was a system of representations for organizing the material body, in other words a kind of mediation, why does the end of work as industrial production not merely usher in a new mediation? Second, what might this remediation look like? In this chapter, I use media studies treatments of the body and materialism, the history of numerical control, and feminist Marxist accounts of social reproduction and unwaged work to understand a new division of labor, and a remediation of Rabinbach's human motor. In order to make sense of these various theories and histories, I read two works by Shelley Jackson, a book of short stories, *The Melancholy of Anatomy*, and the second-generation hypertext *Patchwork Girl*.

Chapter five, or **XL**, places Jackson's remediated worker in the XL space of knowledge production: the corporate-university-interdisciplinary complex. Richard Powers's *Galatea 2.2* (1995) re-enacts the invention scene of Goethe's *Faust*, which earlier marked the beginning of the secular university and hermeneutics. "The Knowledge Worker's Tragedy" replaces what Kittler calls "The Scholar's Tragedy," as Powers records the expansion of corporate space and capitalist valorization into all forms and pursuits of knowledge. The result is less the delirium of authorship than the

delirium of what *New York Times* reporter Elizabeth Bumiller has termed “Sforzian backdrops.”

I argue that Powers’s semi-autobiographical narrator enters into a pact when he accepts a fellowship at the Center and eventually embarks on a project to build a machine that can perform literary theory. This pact demonstrates the emergence of the XL space of knowledge production, a scale I analyze through Hardt and Negri’s concept of the “metropolis” in *Commonwealth* and Paolo Virno’s concept of virtuosic labor, in *A Grammar for the Multitude*. I call this scale XL in order to represent a landscape of production in the sense of how post-Fordist capitalism escapes the factory for larger sites of production, and in fact networked, virtual sites of production. Hardt and Negri conceive of the metropolis as the space for the production of value through biopolitical labor. Similarly, Virno places virtuosic labor in the space of cooperation, a kind of “publicly organized space” that virtuosic—or, perhaps, biopolitical—labor requires. I analyze this concept of virtuosic labor through a reading of *Galatea 2.2*’s confrontation between the humanities and the sciences, and the human and the machine, in order to determine under what conditions it could be said to produce value or to be unproductive labor, and thus a crisis for capital to resolve.

Koolhaas’s analysis of the “problem of large” connects to this thesis. Koolhaas positions “Bigness” against the weightlessness into which architecture would be made to melt into air “through the combined effects of demographic trends, electronics, media, speed, the economy, leisure, the death of God, the book, the phone, the fax, affluence, democracy, the end of the Big story” (508). Echoing Jameson, Koolhaas observes that:

Paradoxically, the Whole and the Real ceased to exist as possible enterprises for the architect exactly at the moment where the approaching

end of the second millennium saw an all-out rush to reorganization, consolidation, expansion, a clamoring for megascale. Otherwise engaged, an entire profession was incapable, finally, of exploiting dramatic social and economic events that, if confronted, could restore its credibility. (508-09)

Indeed, in another kind of cognitive map, Koolhaas notes that the pragmatic material concerns of the big building seem to prevent such a totalizing “gesture” toward the Whole by the architect. Not only does the building take on an autonomy of its parts, but the more the building grows in size, the more parts that become “dark zones” inaccessible to the architect, open only to the engineers. But why do the dark zones—the elevators, the plumbing, the heating and cooling systems—necessarily box out the architect? Why do they necessarily maintain an “aura of objectivity”? In the rest of the building, Koolhaas notes “breakdown of program,” “strategy of the void,” “autonomy of the parts.” Yet here the architect surrenders to the engineers. The problem of maximum architecture thus serves as an analog for the problem of the corporate university today, and the Center in Powers’s *Galatea* 2.2. Why does the fictional author Powers feel so intimidated by the “aura of objectivity” that cloaks the work of his scientific colleagues?

In the final chapter, **XXL**, the scale shifts from the metropolis of virtuosic labor to the globe. I want to consider two things that fall under the category of XXL: the global proletariat or the masses of low compositions of capital, and the concept of the landscape as machine. Earlier chapters focused on electronic technologies and the techno-scientific cyborg laborers who stand at the top of the laboring hierarchy, working in situations of highest organic composition of capital.<sup>6</sup> The main reason for this focus is that is in these areas of most intensive machine production that the end of work thesis comes most into focus. But the laboring multitude exploited in sweatshops and factories

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<sup>6</sup> The organic composition of capital is equal to the ratio of constant capital to variable capital (or machinery—including soft machinery—to living labor).

serve as a counterweight to the end of work proclamations. And yet, it is their situation that most of all brings out the double meaning of the expression “end of work”: “End of work? Sign me up!” Beyond these empirical data points that weigh as evidence against the end of work thesis, there is also a very good theoretical reason for their existence. Because machines cannot create value, all the machinery of the West must be fed by sections that rely on high ratios of variable capital. The individual capitalist does not control his surplus value anymore than he can read a self-help book and take his company from good to great in seven steps. The theme of *XXL* reminds us that capitalism itself remains one vast ecological machine stealing our time and re-distributing the surplus value across its many nodes. This is what is meant by the term “average rate of profit.”

Leslie Marmon Silko’s *Almanac of the Dead* (1991) makes it possible to this interconnection primarily through an emphasis on land, both through her descriptions of landscapes from various characters’ points of view, and her formal premise that the land is an actor. Silko portrays landscape itself as an agent resisting capital’s command of space through organization. Instead of reading this premise as an instance of multicultural post-political, I see it as demonstrating the aforementioned interconnection and antagonism, as well as Negri’s post-workerist description of society as an ecology and nature as a machine. Following this insight, I read *Almanac* as a successor to the great naturalist depictions of a landscape of production in Norris’s *Epic of the Wheat* trilogy.

I also connect this work to Silko’s reversal of the liberal interpretation established when Mark Twain ridiculed James Fenimore Cooper’s landscape filled with Indians. In

his laudatory review of Cooper's writing, D.H. Lawrence describes Cooper's landscape as a kind of landscape-menace. While liberal "multicultural" readings concur with Twain, I show how Silko re-creates Cooper's menace amidst an artificial landscape in order to map out the central antagonisms of our present concerning the end of work. This apocalyptic novel returns us to Leatherstocking's observation that the prairie's lack of monuments, on the contrary to scientific opinion, actually signals the greater age of its civilization compared to the "Old World." Civilization on the prairie thus takes on a mythic dimension. In *XXL*, the crisis immanent to the capitalist use of machinery takes on mythical proportions.

## CHAPTER 2 CYBERPUNK: NOTATION SYSTEMS ON THE GENERAL INTELLECT

Late at night, when the grizzled old-timer is curled up in bed with a sexy subroutine or a mystifying macro, the young blade is busily engaged in a dialogue with his terminal.

—Gerald Weinberg, *The Psychology of Computer Programming* (6)

Realism was the key.

—Lou Reed, *Metal Machine Music* (liner notes)

### **Introduction: Confronting the Machine**

Cyberpunk once appeared to many critics as the “apotheosis” of literature’s confrontation with the machine and its late capitalist representation problem.<sup>7</sup> This sentence I think accurately summarizes the position of a range of critics, but I am combining two specific phrasings from particular critics. Ivan Csicsery-Ronay famously called cyberpunk an “apotheosis of postmodernism” (182) in his “Cyberpunk and Neuromanticism.” Fredric Jameson outlines the representation problem the machines of late capitalism pose for the would-be political, cognitive mapping literature of postmodernism.

A number of important cybernetically-inspired and technologically-inclined studies of postmodernist literature appear in the 1980s and 1990s. The authors of these books appear to develop positions based on canonical postwar postmodern authors like Thomas Pynchon, Norman Mailer, William Gaddis, William Burroughs and Joseph McElroy, and then tag on cyberpunk to their studies. Joseph Tabbi’s *Postmodern Sublime* (1995) closes with an “epilogue” on cyberpunk fiction that summarizes common

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<sup>7</sup> While Csicsery-Ronay calls cyberpunk an “apotheosis” of a much broader concept or thematic, in the same introductory paragraph he refers to its “hard-tech future,” “techno-future,” “nature . . . elaborated by technical means,” and “techno-sublime” (182). And he clearly uses Porush’s study of cybernetic fiction’s handling of the machine problem to differentiate and articulate a definition of cyberpunk.

critical positions on Gibson and cyberpunk—and, more crucially, what is dissatisfying about these positions—but treats only Gibson’s *Neuromancer* in any detail. John Johnston’s more recent *Information Multiplicity* (1998) closes with an essay on *Neuromancer* and a brief “coda” on Pat Cadigan’s *Synners*. Both Tabbi and Johnston can be credited for offering hypotheses for how cyberpunk writing might be differentiated from that of the other postmodern writers whose works they discuss, but neither covers the subgenre in-depth.

Earlier studies by David Porush and Brian McHale appear in the mid-1980s as cyberpunk first emerges, but they do not include any cyberpunk writing. Indeed, in *The Soft Machine*, Porush differentiates cybernetic fictions from SF—citing SF’s machine interest as not extending beyond thematics—and thus forecloses the possibility of considering cyberpunk in his study.<sup>8</sup> Yet, each critic has added cyberpunk epilogues in subsequent works. McHale follows the earlier *Postmodernist Fiction* (1987) with *Constructing Postmodernism* (1992), which closes with two chapters on cyberpunk fiction. In these essays, McHale is clearly one of the first critics to attempt to develop a “poetics of cyberpunk” that would see the subgenre as its own body of writing (rather than as a subdirectory of both postmodernism and SF); and yet they still function as epilogues whose insights remain somewhat bound by an approach determined by canonical postmodern writers. Porush, meanwhile, has written on cyberpunk fiction since *The Soft Machine*, and his “Frothing in the Synaptic Bath” seems to indicate that

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<sup>8</sup> This move indicates a failure of genealogical studies of cyberpunk that attempt to situate it in the history of SF literature. Indeed, if *Neuromancer* remains the model of cyberpunk fiction and the most favored object of cyberpunk criticism, such an approach cannot but fail. Gibson has repeatedly downplayed the role of his SF predecessors on his work (though a genealogical approach could make use of Gibson’s comment that when he started out, he attempted to go in the other direction from what he was reading, its importance seems negated by the fact that it is never clear in interviews that Gibson devotes much importance to reading the SF literature), and the work of critics like Larry McCaffrey or Ivan Csicsery-Ronay emphasize cyberpunk’s cultural, informational, or mediatic contemporaries as influences.

cyberpunk could potentially be a cybernetic fiction, which would mean that cyberpunk—in Porush’s view—constitutes an important mutation of SF literature or an inability of cyberpunk to neatly fit into the SF genre.

Although we can see the move by these critics to extend their critical work informed by technological interest from postmodernist fiction to include cyberpunk, the interest soon wanes. Cyberpunk as a (sub)genre scatters and dissolves as quickly as it materialized, dismissed as any kind of “standard” precisely when its favored themes and settings could be most appropriate. After all, twenty-first-century nature is as technologically mediated and artificially constructed as any of its predecessors, if not more so. Yet, even cyberpunk’s most fervent promoters and accepted writers have abandoned ship. Bruce Sterling has dismissed the term, as well as the cyber- prefix in general, and Gibson sets his most recent novels, *Pattern Recognition* and *Spook Country*, in the present.

Asked about the label cyberpunk in 1991, William Gibson responded, “It’s mainly a marketing strategy—and one that I’ve come to feel trivializes what I do” (McCaffrey 279). Of the Japanese, who “have really bought the whole cyberpunk thing,” Gibson says, “It’s as if they believe everything Bruce Sterling has written about it! It’s frightening” (285). Yet, what’s the difference between apparently delusional followers of cyberhype and its critics, who seem to criticize cyberpunk literature as if they believe cyberpunk is what Sterling has written about it?<sup>9</sup> How does one separate the literature,

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<sup>9</sup> See, for instance, Andrew Ross, *Stranger Weather*. After citing Pam Rosenthal’s argument that cyberpunk, as popular culture, would not be the site for “structural solutions” he finds lacking, Ross counters by citing Sterling’s bravado in the introduction to Gibson’s short story collection, *Burning Chrome*, making salesmanship stand in for the work of criticism. In his “Cyberpunk and Neuromanticism,” Csicsery-Ronay opens with a reading of Sterling’s preface to *Mirrorshades* that is (I think correctly) highly critical of Sterling’s claims. Both Csicsery-Ronay and Suvin appear to organize their readings based on a polarity that comes from Sterling’s claim that cyberpunk represents an alliance of technology and

what it seeks to write down, how its various would-be authors write it down, how it is marketed, and how it is received and rewritten?

Cyberpunk criticism to date surely indicates this is no easy task. Darko Suvin observes that the mushrooming of the science fiction field in the 1980s makes it impossible for any single person to “follow the field” and admits that, if reading the literature is required, “then I am not competent to talk about this phenomenon” (350). Thus, in the same influential essay, Suvin narrows the field to the authors Gibson and Sterling, because an “extensive survey of cyberpunk SF” would be “not only materially impossible, but methodologically dubious” (351). Suvin compares Gibson and Sterling and produces the binary of potentially “coalescing oppositional worldview” and “complicit[y]” with the culture industry. This reading leads him to Sterling’s conclusion about cyberpunk, as he suggests we stop talking about the label “cyberpunk” altogether. While I agree with Suvin’s conclusions about Gibson and Sterling within the context of his ideological reading, his conclusions about the genre are dubious at best. After admitting to large gaps in his knowledge of the literature—including significant contributions to the field by Cadigan, Richard Kadrey, and Jack Womack<sup>10</sup>—and making the humble and sensible decision to narrow the data set, Suvin proceeds dramatically to suggest we drop the term “cyberpunk” altogether, since there is only one writer writing it. Suvin thus reproduces at the scale of the novel a reading practice described by

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counterculture on one hand, and a “world of organized dissent” on the other. The position of the “pessimists” (as Suvin calls himself and Csicsery-Ronay) is thus as follows: we grant you the technology and potential counterculture tendencies, but is it allied with organized dissent or organized by and complicitous with capitalism?

<sup>10</sup> Suvin’s essay is published in 1989. Cadigan’s *Mindplayers* and Kadrey’s *Metrophage* are published in 1988, while Womack’s *Ambient* appears in 1987. Suvin mentions Marc Laidlaw, but not his 1985 novel, *Dad’s Nuke*.

Nietzsche as lying, “guessing” at the meaning of twenty novels from a reading of five of them.<sup>11</sup>

The problem plaguing cyberpunk criticism has elsewhere been noted by Michael Hardt and Fredric Jameson as the deprivation of coherent radical political movements that forces “the condition of theorizing without movements” (Hardt 5). The analogy becomes clear if we contextualize cyberpunk literature and earlier cyberpunk criticism in the 1980s of Reagan and Thatcher. Ideological criticism or criticism otherwise concerned with tracing out coherent political possibilities was bound to be disappointed by cyberpunk. This is why, to give another example, when *Neuromancer’s* protagonist Case cannot articulate a coherent political position for why the AI Wintermute should be set free, Andrew Ross reads a lack of political agency that leads him to agree with critics who have labeled cyberpunk politically irresponsible.

If this is the end of the line for cyberpunk, what is its legacy? As it turns out, dismissive studies of the fiction by Csicsery-Ronay, Ross, and Suvin may have turned out to be more prescriptive than descriptive. In influential essays, each concludes that cyberpunk is less a genre than a single author, and thus established the program for most cyberpunk criticism, which has generated an amazingly small number of interpretations of the literature.<sup>12</sup> While cyberpunk has clearly deserved some of its criticisms, these problems can be attributed, at least in significant part, to the constraints of corporate publishing conditions, as much as they can a political bankruptcy of cyberwriters. Suvin’s conclusion that Sterling is a PR man thus becomes a statement describing Sterling’s position in the discourse network. Perhaps the biggest factor in

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<sup>11</sup> See *Beyond Good and Evil*, section 192.

<sup>12</sup> See Csicsery-Ronay, Jr. “Cyberpunk and Neuromanticism” and Suvin, “On Gibson and Cyberpunk SF” in McCaffrey, *Storming the Reality Studio*.

cyberpunk's dissolution as a significant literary project (or at least a subgenre actively interrogated by literary critics) is simply that the scene it described became familiar.

The height of cyberpunk notoriety, in both critical and popular reception, occurs from the mid 1980s to the mid 1990s. Its most critical period of invention and genre formation takes place earlier, however, and could be dated 1979-88.<sup>13</sup> This time period ranges from the initial meetings of key figures such as Bruce Sterling, Lewis Shiner, and William Gibson, to both the closure of Gibson's *Neuromancer* trilogy with *Mona Lisa Overdrive* in 1988, and the publication of the *Mississippi Review's* double issue on cyberpunk, which would later be incorporated into *Storming the Reality Studio*, the definitive "casebook" of cyberpunk literature and criticism. Cyberpunk writers of course continue to write throughout the 1990s, and their output includes Pat Cadigan's *Synners* and Neal Stephenson's *Snow Crash*, each of which is regarded as essential to the cyberpunk canon. Critical interest in the movement, however, wanes as the twentieth century comes to an end. The genre becomes conflated with all things vaguely cyber or futuristic in popular culture and journalistic writing (and perhaps cyberpunk authors' own work). Gibson's literary output—which is considered by cyberpunk writers as the motor force of the movement's development (and of the development of critical writing on cyberpunk)—suffers throughout this decade, becoming formulaic. Moreover, cyberpunk writers rush to get out of the label with the same fervor with which Sterling's manifesto announced their arrival.

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<sup>13</sup> I draw this periodization from the following works: Sabine Heuser, *Virtual Geographies*; Bruce Sterling, preface to *Mirrorshades*; Lewis Shiner, "Inside the Movement: Past, Present, and Future" in *Fiction 2000*; and Larry McCaffrey (ed.), *Storming the Reality Studio: A Casebook of Cyberpunk and Postmodern Fiction*. Essays by Suvin and Csicsery-Ronay, Jr. that I cite earlier in the chapter appear in McCaffrey's collection.

During this same time period of cyberpunk's development, Shoshana Zuboff researches and writes her groundbreaking study of computer technology's transformation of work and its organization, *In the Age of the Smart Machine*. Zuboff dates the beginning of her work on this book as 1978, when she was asked by a Wall Street bank to assess their "first application of advanced information technology to clerical work":

Visiting the bank's offices, I witnessed a sight that would eventually become so familiar as to defy notice—an entire floor of people seated at their partitioned workstations, staring into the screens of desktop terminals. (xi-xii)

The scene bears an uncanny resemblance to the one that inspired Gibson to create cyberspace: an entire floor of people standing at individual arcade games, staring into the screen as if there was an actual space inside. Zuboff interviewed these clerical workers. Their accounts could remind us of all kinds of cyber-writing, from familiar scenes of cyberpunk to N. Katherine Hayles's history of cybernetics.<sup>14</sup> "Many people voiced distress, describing their work as 'floating in space' or 'lost behind the screen'" (xii).

Zuboff believes she is witness to a monumental shift in the nature and organization of work, a shift that would allow her only a brief recording time before the shock of its unfamiliarity hardened into routine. Zuboff is anxious to record the scene quickly: "Before I knew it, I was writing furiously in my notebook" (xiii). Cyberpunk writers share the same scenario, furiously and anxiously recording the scene of transformation in work and technology that Zuboff compares to Britain in 1789 or 1848. She publishes her recording ten years later, the same year that Gibson publishes *Mona*

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<sup>14</sup> See N. Katherine Hayles, *How We Became Posthuman*.

*Lisa Overdrive*, *Cadigan Mindplayers*, and *Sterling Islands in the Net*. Each author records the same thing: new information technologies' textualization of work, as part of the post-Fordist transformation of the organization of work.

Some consequences follow from this argument. First, criticism that focuses on cyberpunk's stylistic features as style only—mirrorshades or Raymond Chandler for instance—misses what is innovative about cyberpunk writing. Mirrorshades and Chandler-esque copy, as well as marketing and reception apparatuses and strategies, must be disentangled in order to get at specifics of the recording scene. This argument may suggest a transformation of readings of stylistic form and thematic content in cyberpunk. But what happens when the stylistic characteristics resemble thematic interests (and form becomes content)?

Second, reading cyberpunk as a recording system with little important authorial intervention (in a traditional sense), especially in terms of style, raises questions about authorship and media conditions. If cyberpunk writing is merely recording, who is inscribing and who is being inscribed? If traditional authorship can be radically devalued in the case of these texts, then who writes, and—perhaps most importantly—who reads? And how is this reading to be managed? Approaching cyberpunk writing through these problems will tell us something about the nature of work and its organization today, as well as its resistance. But this approach may also suggest an alternative way to think about “Fiction 2000” including especially its digital media forms, such as hypertext narrative. For now it will suffice to describe cyberpunk's recording of the post-Fordist scene of work.

## Notation System

Here I read cyberpunk literature as a notation—or writing-down—system recording the post-Fordist transformation and textualization of work. Cyberpunk writing—other than its initial push away from New Wave SF (which may be exaggerated), and when it is not simply falling into formula—operates mostly as a recording or transcribing of its situation. A remark Gibson offers in an interview makes this clear:

My SF *is* realistic in that I write about what I see around me. That's why SF's role isn't central to my work. My fiction amplifies and distorts *my* impressions of the world, however strange that world may be. (McCaffrey 276)

If we take Gibson seriously that he is simply recording his impressions of the world, and his science fiction writing is only a medium that amplifies or distorts these impressions, we might ask then: what material is Gibson recording that ends up amplified and distorted? And if the genre itself is not central to his work, what good would contextualizing this work in a genre study do? Busy transcribing what he sees, Gibson does not or cannot observe his own notation system. In this way, cyberpunk—as in Jameson's analysis—works as a representation of the present.<sup>15</sup>

This mutation brings its own specific problem. Because Gibson is only a recorder of this ever-changing technological situation, he has little opportunity for reflection:

This may be a suicidal admission, but most of the time I don't know what I'm talking about when it comes to the scientific or logical rationales that supposedly underpin my books. (Gibson interview with McCaffrey 281)

In a political context, *operaismo* and *autonomia* theorists have remarked that the struggle to keep up with the pace of events forced them to record quickly, similarly without time for reflection. And it still may not have been fast enough, as one theorist

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<sup>15</sup> See *Postmodernism*.

laments that they only ended up predicting post-Fordism. Similarly, the oft-noted speed of cyberpunk prose may not reflect stylistic self-consciousness as much as it does cyberpunk's recording situation. If the rise of cyberpunk corresponds with SF's mushrooming, it seems SF develops under its own Moore's Law in order to keep up with the raw material it records.

Italian marxist writing provides an instructive entry. Emerging out of the postwar 1950s, these writers wrestled with problems of organization, technology, and the socialization of capital, all key components of cyberpunk's thematics.<sup>16</sup> Pursuing the analogy further, I note that *operaismo* (workerism) developed in the 1960s not based on the work of a single thinker or movement leader, but, as Hardt observes, "on the theoretical experience of an influential journal" ("Art of Organization"). *Quaderni Rossi*, or the "Red Notebooks," appears in 1961 amidst similar conditions as cyberpunk. In the immediate postwar, Italy's industrial production was about one quarter of its 1938 production, and Italians earned low incomes and suffered from poor diet (Wright 6). By the end of the 1950s, however, Italy experienced a productivity "miracle." As Steven Wright notes, the conditions for the miracle were established much earlier, "in the late 1940s only after a massive shift in the relations of force between the major classes" (7). The Italian Communist Party (PCI) chose the politics rather than the workshop or field as the arena in which to wage struggle in the postwar, and thus made building a large party its primary goal. They conceded the organization of the factory in an effort to accommodate other social groups and to place primary importance on improving productivity and thus living conditions, which were indeed dire at the time. The PCI's

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<sup>16</sup> See Steven Wright, *Storming Heaven: Class Composition and Struggle in Italian Autonomist Marxism* (2002).

strategy, as Wright argues, indicates that they saw the organization of production as neutral, as a “problem of technique” (9).

Workers thus assuaged, the way was paved for “reconstruction” with an influx of American aid. In 1947, as Italy’s historic left parties were demoted and replaced with Christian democratic hegemony, the United States held 70 percent of the world’s gold reserves (Arrighi 275). U.S. internationalism expanded into Italy and brought with it the vertically integrated model of corporate capitalism that stressed planning and organization, or the control of markets through the option of eliminating them. The Italian “miracle” thus occurs in part because of the self-tempering of working class resistance, as the PCI gives up the workplace for the arena of formal politics, but then finds itself expelled from power there as well. Productivity increases by the end of the 1950s thanks in large part to investment in fixed capital and expansion into international markets, underpinned by low wages, high unemployment, and the recruitment of migrants from the global south (Wright 10-11).

At this time, Raniero Panzieri rises to prominence in the Italian Socialist Party (PSI). As the strategy of abandoning the workplace in favor of formal politics resulted in crisis for the left parties, a space for more radical critique opened. In 1957, Panzieri argued for the necessity of “restor[ing] Marxism to its natural terrain” of “permanent critique,” a goal which could only be accomplished by taking it out of the hands of “party leaderships and party directions” (qtd. in Wright 16). Though Panzieri for a brief time would head its theoretical journal, in 1959 the party removes him, allying with Christian democrats as an alternate strategy. Panzieri moves from Rome to Turin and joins with new collaborators, including Mario Tronti, in work on the “Red Notebooks.” Here

Panzieri produces some of his most important writing, including work on capitalist planning and polemics against the Leninist view of technology and planning as neutral. Just as the new techniques of planning in the Italian factory of the 1950s, as well as its increasing automation in the 1950s and 60s, were confused as neutral developments that only required new bosses or protections against speculation, so too does the American experience of the computerized workplace in the later 1970s and 1980s appear to many as neutral.

Zuboff's study wavers ambiguously between these two positions. On one hand, she continually cites the potential of the new technologies to free workers from the drudgery of routine labor. On the other hand, she finds it difficult to come up with evidence that such a transformation is possible. Indeed, one could say of Zuboff what she says of the managers at one of the pulp mill sites where she records data:

No matter how extreme the vision, many of Piney Woods's managers seemed at the last moment to feel compelled to qualify their statements with references to the primacy of the human being. There is a decidedly ritualistic quality to these statements, like a tail dutifully pinned to a long body of discourse that focuses exclusively on the technology. (247)

Zuboff's own refrain goes something like this:

There is an alternative, one that involves understanding this technological change as an occasion for developing a new set of skills—skills that are able to exploit the informing capacity of the technology and to become a new source of critical judgment. (70)

While there is merit to such a position, and it is one shared by Hardt and Negri and Virno, in their more nuanced accounts, one should remain wary.

Criticizing such an "objectivist" position, Panzieri argues that technological development is *determined* by capital, rather than merely *distorted* after objective or neutral development. The mass of social labor and the science of the work processes

all end up, in Marx's words, "embodied in the system of machinery" (qtd. in Panzieri 47).

In this view,

An 'objective' view of the new technological-organizational forms gives rise to particularly serious distortions of the nature of employment in the modern factory. There is a tendency to perceive a disappearance of parcellized functions and establishment of new tasks of a unitary character, allegedly involving responsibility, decision-making and a multiplicity of technical skills. (52)

Now Zuboff again:

While it is true that computer-based automation continues to displace the human body and its know-how . . . the informing power of the technology simultaneously creates pressure for a profound *reskilling*. (57)

Zuboff's wavering, or at least recognition of both possibilities, seems more or less the correct way to view the post-Fordist scene. By emphasizing the new technologies' informing power, she avoids romanticizing some kind of artisan labor. The workers of Zuboff's studies, for example, even if they have lost responsibility and feel lost at the terminal, are happy to give up what she calls the body's "scene of effort." Yet, it is important to note that the technological changes do not change relations of force, and in fact occur within and as rationally planned by the capitalist field. Planning, as Panzieri argues, is "the fundamental expression of the law of surplus value" (22).

The major theoretical site for Italian writers associated with *operaismo* is Marx's writings on machinery and large-scale industry, especially in the *Grundrisse*'s "Fragment on Machines." In the *Grundrisse*, Marx develops the concept of the "general intellect," which refers to the general productive forces of the "social brain" or social knowledge. Marx describes the process by which these productive forces come to be absorbed into capital and appear in fixed capital as the "objective form" of social labor (694). The worker's means of labor "loses its direct form" and, transferred to machinery,

now confronts the worker as capital. The worker becomes an appendage, and labor appears,

subsumed under the total process of machinery itself, as itself only a link of the system, whose unity exists not in the living workers, but rather in the living (active) machinery, which confronts his individual, insignificant doings as a mighty organism” (693).

This could be a description of various American writing, including cyberpunk, whose attempts to cognitively map our present system of global capitalism often pass through glimpses of the technological sublime.<sup>17</sup> For Jameson, this technological sublime is a figure for something else, the incomprehensible complexity of global capitalism:

The technology of contemporary society is therefore mesmerizing and fascinating not so much in its own right but because it seems to offer some privileged representational shorthand for grasping a network of power and control even more difficult for our minds and imaginations to grasp: the whole decentered global network of a third stage of capital itself. (*Postmodernism* 38)

Here we can see why technology is a privileged figure of representation. The tendency for automation and organization to reduce labor’s necessity in production does not work solely in the dystopian direction indicated above. Because this tendency erodes the need for individual labor power, capital, in Marx’s words, “works toward its own dissolution” (700).

Capital itself is the moving contradiction, [in] that it presses to reduce labour time to a minimum, while it posits labour time, on the other side, as sole measure and source of wealth. Hence it diminishes labour time in the necessary form so as to increase it in the superfluous form. (706)

If on one side, capital “calls to life all the powers of science and of nature, as of social combination and social intercourse” in order to create wealth as independently as

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<sup>17</sup> See Tabbi, *Postmodern Sublime: American Writing and Technology from Mailer to Cyberpunk* (1995), as well as the essential formulation of this problem: the first chapter of Jameson’s *Postmodernism, or the Cultural Logic of Postmodernism* (1991).

possible of the labor time it employs, on the other side capital tries to confine the immense force of complex labor and social cooperation within the labor theory of value. Forces of production and social relations become “the material conditions to blow this foundation sky-high” (706).

Yet, although today we can see the facticity of the domination of the general intellect, the potential effacement of individual labor time as the real source of wealth has not at all dissolved capital’s power. Capital, rather, has reorganized itself into an even more insidious and grinding down force, in which the decisive aspect of the general intellect is not its embodiment in fixed capital, but its manifestation in living labor. In his “Notes on the ‘General Intellect,’” Paolo Virno observes that this reorganization challenges us to “interpret the ‘Fragment’ in a completely different way” (267). If today the tendencies Marx described in the “Fragment” now appear as factual conditions, but without the “reversal,” then the “Fragment” has become a mere “sociologist’s toolbox,” perhaps less dull than Jeremy Rifkin’s statistical stockpiling in *End of Work*, but still “a topographical map of the present rather than an escape toward a brilliant communism illumined by its own radiance” (267).

### **White Noise of Idle Talk**

In the post-Fordist cybernetic environment, the human body as soft machine has become fully inscribed into communicating networks of cybernetic production. As Virno remarks, this is the general intellect’s “decisive aspect today” (“Notes” 270). I would argue that because cyberpunk is more a presentation of this post-Fordist scene than an extrapolation of selected tendencies, it is caught in a bind that both makes (for example) Wintermute’s freedom a tenable and desirable protagonist’s quest, and critical complaints of a lack of human agency and counter-politics tenable descriptive criticism.

It is the same indeterminacy as in Marx's description of, on one hand, a total domination of living labor by capitalist machinery, and, on the other hand, his interpretation that this very process contains the potential "to blow this foundation sky-high."<sup>18</sup>

We turn now to the "real abstractions" of communication and the communications industry. We must remember that the tendency of living labor toward objectification in capital's production process does not depend on machinery; it is rather inscribed in the logic of capital itself. It also becomes a means of warding off capital's crisis, in the contradiction between creating disposable time and converting it into surplus labor. As necessary labor time is reduced and therefore surplus labor increased, capital can either waste excess production, or cease or reduce production time—which obviously it would not do—or it can convert a part of the production process into the production of more means of production.

Today industry of the means of production produces not just machinery, but also, in Virno's words, "linguistic-cognitive competencies inseparable from living labor" (61). In fact, the role of the communication industry in post-Fordism is this production. Claiming dissatisfaction with Marx's conception of the general intellect "as a scientific objectified capacity," Virno argues that "the general intellect manifests itself today,

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<sup>18</sup> It is unfortunate that Ross, and the critics he cites, are unwilling to observe this indeterminacy, and instead criticize cyberpunk on other criteria entirely. If cyberpunk offers no "blueprint" for social change or democratic utopian imaginings, this is because utopia is a specific machine (or genre) itself, as is clear from Phillip Wegner's *Imagined Communities*. Moreover—as Wegner's work also shows—imagined democratic futures are often built on the exclusion of some group or groups and do not look so democratic when the future comes and gives us the vision of hindsight. This indeed is a theme of Gibson's short story "The Gernsback Continuum." In the case of Ross's criticism of *Neuromancer*, excluded from his imagined democratic alternative to cyberpunk is *Wintermute*. Despite the lack of any textual evidence that would suggest *Wintermute* is "monstrous" (unless Ross merely objects to its vastness), that is how Ross labels the AI (150). In the end, Ross's attempt to deflate cyberpunk's techno-balloon looks like Norbert Wiener's anxieties over cybernetics' encroachment on the liberal humanist self (see Hayles' *How We Became Posthuman*).

above all, as the communication, abstraction, self-reflection of living subjects” and “in the direct activity of human labor, in its linguistic cooperation” (65).

This is not to say, however, that the general intellect frees itself from the social factory. Virno draws on Heidegger’s concept of “idle talk.” A manifestation of inauthentic life, “idle talk” stands for “a contagious and prolific discourse without any solid structure, indifferent to content” (88). One who chatters, according to Heidegger, is one who does not work, who is always diverted and idle. In a word, distracted, a term Virno takes from Benjamin. Benjamin praises distraction in relation to film, which he says allows the public to assume the position of critic, but in an absent-minded manner that best takes in a technically constructed experience. In this way, it can generate something like the creative side of an idle prolific discourse, as it invents among signifiers, rather than penetrating to signifieds.

Kittler argues that what is true of Benjamin’s movie screen is true of all media in the discourse network of 1900. Each wrecks bourgeois concentration and replaces it with the rule of distraction. Nietzsche is Kittler’s central figure here. Instead of producing signifiers from the content of prelinguistic inwardness, Nietzsche sat at his writing desk and wrote down the roaring in his ears.

He took so literally the German essay’s appeal “to listen to one’s own thoughts and feelings” that thoughts and feelings turned into their opposites. . . . Where there should have been prelinguistic inwardness, susceptible to articulation and development, “a roar went through the air.” (183-84)

The transcription of “incessant noise” thus replaces the fantasia of the library, in which male readers concentrate themselves into reverie and pledge their love to hermeneutics in order to invent and become author-heroes. This changing of discourse networks anticipates the changing nature of labor in post-Fordism. Virno contrasts the two

networks when he notes that, where factory signs once commanded “*Silence, men at work!*”, office signs in post-Fordism should read, “*Men at work here. Talk!*” (90-91).

Thus, idle talk, once allowed only in the “realm of free time and relaxation,”—or in other words, non-labor time—is now “the pivot of contemporary production in which the act of communication dominates” (89).

Cyberpunk records this problem as one of its themes and produces its own chatter as well—perhaps, as Jameson noted, trying to talk itself into the delirium of high-tech multinational capitalism (321). In Stephenson’s *Snow Crash*, those infected with the snow crash virus are made to babble meaninglessly. Gibson captures the prevalence of Nietzsche’s white noise in the post-Fordist social factory in the famous opening sentence of *Neuromancer*: “The sky above the port was the color of television, tuned to a dead channel.” In Cadigan’s *Mindplayers*, a bad trip lands the main character in an ER, “babbling every thought that runs through [her] head” (11). A terrorist attack in Sterling’s *Islands in the Net* is followed by a fax from the group claiming responsibility; “it read like computer-generated prose” (51). In Rudy Rucker’s *Wetware*, one character comments, we’re all “information processors” (132). In Stephenson’s *Cryptonomicon*, the Turing Machine processes data so fast the tape smokes, prompting one character to notice, “no human mind could deal with a stream of characters coming in at that speed” (195).

At the same time, the translation of pre-linguistic inwardness into language fails, thwarted by the white noise of chatter. In Tom Maddox’s short story “Snake Eyes,” an air force veteran who had received brain implants later finds his neocortex suddenly controlled by the more “ancient” part of his brain. What he calls “the snake,” the

scientists at Sentrax tell him, “cannot be reached through language” (23). In Pat Cadigan’s *Synners*, video production and reception become literally the stuff of dreams when a new surgical procedure makes it possible to tap the brain directly, skipping the acts of reverie and translation.

Sterling has said that cyberpunks try to create a “wall of sound,” but who needs a punk aesthetic when you’ve got the chattering of the general intellect at work? Once computerization effects the linguistic turn in industrial organization, digital texts simulate the plant’s activity and its production process.<sup>19</sup> Modern capitalist organization becomes, “a network of recurrent conversations” (Winograd, qtd. in Rabinbach, “The Biopolitics of Work” 106). Cyberpunk writing thus, precisely as Virno observes of Marx’s “Fragment,” presents an “empirical reality which lies in front of all our eyes: the empirical reality of the post-Fordist structure” (101).

In this chapter’s epigraph, Weinberg pits the grizzled old-timer against the young blade, or the programmer who reads programs against the programmer who does not. Similarly, Zuboff opposes the worker who understands the program or logic underlying the terminal space and the worker that only engages with the screen. Weinberg develops this opposition in order to argue for a method of reading that uses material from an older discourse network in order to resist subsumption into a new discourse network. Judge Schreber, from whose delirious memoirs Kittler derives the term “writing-down-system,” similarly resorts to an older discourse network to combat the onslaught of a new discourse network. As part of his nervous illness, Schreber imagines that cosmic rays compel him to compulsively write down his “store of thoughts.”<sup>20</sup> In an

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<sup>19</sup> See Anson Rabinbach, “The Biopolitics of Work.”

<sup>20</sup> See Daniel Paul Schreber, *Memoirs of My Nervous Illness*, chapter 9.

attempt to shut out the voices that speak through Schreber or compel him to shout out obscenities and nonsense, Schreber's "methods of defense" form a point by point return to the classical discourse network. As Kittler writes: "newspaper rather than oeuvre, memorization rather than understanding, bawdy verse rather than Schiller" (301). Here Kittler contrasts the 1800 discourse network that would have given Schreber his education with the new discourse network represented by Schreber's system of tormenting rays.

Schreber remarks that the rays' goal of having him write down his entire "store of thoughts" is impossible to achieve, as it is "based on a total misunderstanding of human thinking . . . because human thinking is inexhaustible," and any new reading or writing spurs "new thoughts" (127). Schreber's new thoughts, however, are not always new, but rather recurrent thoughts and phrases as might unavoidably recur with all humans. The rays have an answer for this recurrence that prevents him from warding off the exhaustion of his archive. Whenever a thought returns, the rays retort, "We already have't!" In this way, the tormenting discourse network reverses the function of defamiliarization that otherwise is a method to renew perception, and thus stimulate new thoughts. One has only to compare the content of Schreber's recurrent thoughts with that of Tolstoy's, as quoted by the Russian Formalist Shklovsky as illustration of defamiliarization's process. Schreber wakes in the morning and thinks, "Now I will wash," and the rays cut him off. Tolstoy cleans a room and suddenly cannot remember if he has dusted a divan or not, since the movement requires no conscious thought. As Jameson describes in his seminal study of Russian Formalism, "Art is in this context a way of restoring conscious experience, of breaking through deadening and mechanical

habits of conduct” (51). In Schreber’s case, however, the rays ward off such perception by preventing Schreber from making conscious note of his action and, by thinking through the perception in language, thus stimulating new thoughts. And this is precisely the point of the new discourse network figured by the rays. In Kittler’s words, “the feeble-minded discourse network around Schreber is thus . . . *the* discourse network of 1900. Only delirious memoirs betray the actual purpose of the immense effort at recording and storage” (299).

### Writing Space

Cyberpunk novels record the white noise of chatter of the general intellect at work, because they record the space of today’s biopolitical terrain, or what autonomist Marxist writing has termed the social factory. The real abstractions of language and writing are put to work against this background of white noise. When Virno explains that the general intellect “in effect organizes production,” (269) he refers to this organization architecture of media networks. Schreber’s nerve rays and nerve language prefigure this space.

In the late nineteenth and early twentieth centuries, a series of developments transforms the work process and its space, in effect leading to a textualization of work. Taylorism translates the craft of the skilled worker’s body into a codification of processes that can be fragmented into smaller routinized tasks. As Mark Seltzer shows in *Bodies and Machines*, scientific management appears as part of naturalist discourse’s redefinition of the very category of production itself. Production as creation, which is linked to the female body of the mother (earth), gets rewritten as (data) processing, as scientific management incorporates representation of the work process into—and as—the work process itself. Taylor’s rational management system is thus part

of late nineteenth-century and early twentieth-century discourse of thermodynamics. Thermodynamic discourse conceives force in terms of a “conversion without creation” (29). Now freed from notions of creation, late nineteenth-century and early twentieth-century theories of reproduction rewrite generation as a male process.<sup>21</sup> In his theory of scientific management, Taylor participates in this rewriting, as he incorporates the representation of the work process as the work process itself (159). Taylor, in Seltzer’s words, “rationalized rationalization” (159). As a result, conversion of energy through programming replaces creation as the fundamental aspect of work.

It is not far from this rewriting of production to the textualization of work, in which the representation of the work process in the computer programs that run a manufacturing plant or organize and create information are the indispensable actors in the productive process. This transformation prompts Anson Rabinbach to suggest that today’s prominent man/machine metaphoric model is primarily allegorical. By the late 20<sup>th</sup> century, we have moved from machines that convert energy to machines that simulate machines. This sounds like a description of cyberpunk and captures obvious themes of cyberspace and hyperrealism. But in between the development of scientific management and the age of the smart machine, there is still a half of a century.

In the postwar, a new space emerges, which Reinhold Martin has called the organizational complex.<sup>22</sup> Managerial authority comes under fire, as the trade union movement progresses in the post-Depression era. Elton Mayo, an industrial psychologist pioneers a language of cooperation that can integrate workers into the

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<sup>21</sup> According to thermodynamic biology, the male seed spends and breaks down, transferring its weight or energy to the female. Following the second law of thermodynamics, this conception emphasizes the conversion of energy, not the creation of energy, and hands the active role of the reproductive process to the male. See Seltzer, *Bodies and Machine*. Chapter 1.

<sup>22</sup> See Reinhold Martin, *The Organizational Complex*.

organization through better communication (Zuboff 233-35). Mayo's innovation is that he integrates employees not through discipline, but therapy (Martin 92). Mayo thus puts part of the post-Fordist diagram in place, as workers are given the talking cure. The worker is seen as a psychic self, whose obedience can be secured by meeting his or her desire for more meaningful work and prestige among fellow workers. Mayo's innovation leads not to the transformation of the quality of workers' jobs, but to the creation of a system of cybernetic control. "Now the implicit emotional structure of the worker could undergo the same codification and absorption into the managerial knowledge base" (Zuboff 235). Mayo's system leaves work arrangements unchanged, but its operations psychologically enhanced.

At the same time, the physical space, or material organization, of work changes. A number of factors come into play here: the above-mentioned struggle of workers against managerial authority, the increasing Taylorization of white collar work, the development of human resources, and the cybernetic revision of corporate space. Taylorization deskills the worker, depriving him or her of a previous source of social integration and source of identity or meaning in the workplace; but the development of this new space of the organizational complex seeks to ensure organizational integration through different means.

Martin sees the architecture of the organizational complex as media, as one medium among many in the techno-aesthetic discourse of the period. This system obviously emerges with cybernetics and communications theory, and the shift has, in part, been articulated by Deleuze as the shift from the mold to modulation in his

“Postscript on Control Societies.” Martin also emphasizes the significance of modulation.

Inside these modulated fields were occupants no longer representable as ‘salaried masses,’ whose own physiognomy had been refigured as a pattern of character types that served as receptacles for a progressive individualization announced by human relations discourse, a process that reached deep into the subjective interior of each worker-consumer in a cascade of behavioral codes.” (120)

Flexible modular office space, built at the demands of the market, transfers content out of its space in the 1930s. Only a little later, IBM’s HR department prints punch cards that transfer the content of the individual’s “soul” out of its body and into a new machine. Interiority, content and meaning are replaced with exteriority and pattern, as integration is recreated as a matter of pattern and homeostatic organization. Organizational logics are now programmed into the very substance of the building (Martin 164).

Organizational charts flatten once pattern-based control is established (181).

A number of struggles thus come together in the post-Fordist work space: the struggle to ensure organizational integration of an increasingly disenfranchised and rebellious laboring subject, the struggle to translate the labor process into codes and reduce the friction of the laboring body in a circuit of cybernetic communication, and the struggle to articulate and design the proper (post)human vision for the new organizational landscape. According to Martin, the logic of modularity extends to production as part of this re-articulation of vision. The machine as organism—the functional view of the nineteenth century—is replaced by machine as pattern modulated by market logic. At GM, engineers retool the automobile’s surface not according to dynamics, but rather this market logic. GM’s goal is to sell machines through which a

new (post)human vision would see organizational landscapes of images in dynamic equilibrium (Martin 139-40).

Virno's description of the post-Fordist workplace and its linguistic cooperation must be supplemented by this history of changes in the work space. While recent articulations by Italian marxist writers have addressed the role of worker flight or rebellion as the motor of capitalist change, it is important to remember autonomist marxism's formulation of technology as essentially programmed by capitalism. And if Hardt and Negri, as well as Virno, find in capital's reliance on the general intellect a communism of capitalism or potentially revolutionary biopolitical production, we should also remember that the history that produces this post-Fordist regime has aimed at a parceling of functions that the objectivist viewpoint writes away with each technological change of organization, in favor of potential of more unitary tasks or arrangements.

John Johnston provides a model for how cyberpunk records and organizes the post-Fordist scene in his study of contemporary American literature and technology, *Information Multiplicity*. Postmodern novels of information multiplicity shift the site and medium of multiplicity from consciousness to "the de-centered information field conceivable only in relation to contemporary media and information technologies" (33). The postmodern reader immersed in this information field reads modernism's fictional techniques of stream of consciousness and interior monologue not as getting to the raw data of experience *prior* to writing, but rather as a conglomerate of *effects* produced in the modern urban and industrial milieu. Johnston turns to the model of information multiplicity as an alternative to accounts of literary modernism that explain these techniques or discursive assemblages in terms of an "aesthetic" tendency. This

tendency reads “processes of modernization exclusively as the fragmentation of experience, a fragmentation that makes reintegrations at the aesthetic or symbolic level possible” (34). These historical accounts, in Johnston’s view, cannot explain the emergence of forms of multiplicity or immanence without recourse to “lost unities of earlier cultural forms” (35).

Johnston’s novels of information multiplicity emerge under media conditions that reorganize human sense perception. Writing on the shock of urban experience in the late 1930s, Benjamin draws on Sigmund Freud’s model of psychic apparatus. Under Freud’s formulation, consciousness receives no memory traces, but rather it is “other systems” that register permanent traces as the basis of memory. Consciousness, on the other hand, serves another purpose: it protects against stimuli, forming a stimulus shield that, in Benjamin’s theory, protects precisely against this “shock effect” of the modern city. Modern urban experience breaks down “traditional structures formerly insuring the absorption of new experience” (36).

Something else then emerges to take the place of these dissolved structures. For Benjamin, film is the prime example, because it makes the shock effect its formal principle, making distraction—rather than contemplation—its aesthetic mode of reception. Modern technologies remediate and reorganize human sense perception, now determined by history and technology, not just nature. Following Benjamin, Johnston emphasizes that, if the new media and shock effects of the modern city create incompatibility between experience and information, this incompatibility must be “redefined as historically new technologies and modes of communication emerge” (38). Johnston sees postmodern novels of information multiplicity as registering and rewriting

the effects of other media. They model the reorganization of the contemporary psychic apparatus, registering the altered status of consciousness in relation to new technologies of data storage, transmission, and calculation. These texts trace the mixing of different regimes of signs, rather than elaborating modern writerly styles, and follow the postmodern death of the author into paranoid or schizoid systems.

Johnston makes a useful distinction between the writing systems of Gibson's fiction (and presumably of other cyberpunk novels) and that of other postmodernist novelists, such as Gaddis and Pynchon. In Gibson's world of spatial multiplicity, separate media no longer produce and differentiate various aspects of our existence, as general digitization erases the differences of separate media (Johnston 252-53). If the separation of media in the 1900 discourse network exploded print's monopoly, digitization returns us to one general medium, as previously partially connected media systems become fully connected.

General digitization corresponds to a general textualization of work in post-Fordism. The body does not become obsolete (although this is one potentiality fantasized in some cyberpunk novels), but rather connected and constrained in a generalized writing space.

In the course of the morning I handled three letters to the company; wrote one letter; took notes on a dozen phone calls (*not* the one to C!), including a call clearly intended for someone else, about hospital visiting hours. (I posted the information on the bulletin board, but it quickly disappeared. Stan and his daughter?).

I realize there is no need for me to keep a record of my work here. Memos, notes, and letters *are* the record. (Harry Mathews, *The Journalist* 14)

The above excerpt provides an instructive entry into this media problem. A doctor advises the protagonist of *The Journalist* to keep a journal for his "mental hygiene." The

journal increasingly takes up the protagonist's time, as he attempts to write down everything: events in his personal life, his work life, observations, dreams, expenditures, communication with others, and so forth. He becomes obsessed with the project, falling into a self-reflexive spiral, in which he subdivides his writing down system in hyper-Luhmannian fashion. At the novel's climax, the journalist realizes that he has left out the most important part of his life: the act of writing in the journal itself!<sup>23</sup> He then makes plans to begin a journal of the journal, "where at last what I'm now doing will find its rightful place in the accounting of my life" (194).

Early in the journalist's quest to both write down everything, to "make an accounting" of his life, and to organize this writing down in the most efficient manner possible, he is able to cut out a big part of the task—work, after all, accounts for a large part of his daily routine—when he realizes work is already recording it for him. No theme of workplace surveillance is developed in *The Journalist*, though some events occur at work and are thus recorded dutifully by the journalist. It's just his work life or his work identity that doesn't require writing down.

This theme of surveillance on the job appears prominently in cyberpunk writing, as evident in this passage from Neal Stephenson's *Snow Crash*:

Just workstations and chairs. Not even any desktops. Desktops encourage the use of paper, which is archaic and reflects inadequate team spirit. What is so special about your work that you have to write it down on a piece of paper that only you get to see? That you have to lock it away inside a desk? When you're working for the Feds, everything you do is the property of the United States of America. You do your work on the computer. The computer keeps a copy of everything, so that if you get sick or something, it's all there where your co-workers and supervisors can get access to it. . .

The central computer notices just about everything. Keeps track of every key you hit, down to the microsecond, whether it was the right key or the

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<sup>23</sup> See Joseph Tabbi, *Cognitive Fictions*.

wrong key, how many mistakes you make and when you make them. (281-82)

The workplace, it seems, is full of chatter. And it records the chatter. As Mathews' journalist writes about his own journal, "the transient mundanities it records survive only through their presence here, while the page itself creates its own transcendent life" (191). But the journalist's journal, its "transient mundanities" recorded for long life as part of a psychic apparatus, is not surveilled. And this is the very reason he is driven to keep a journal of the journal. "I devote more time, thought, and passion to it than to anything else, but aside from passing references and noting the hour when I start work, what witnesses have I borne to it?" (191).

But work keeps its own journal; it bears its own witness. Work, in other words, surveils its own chatter. It has its own technologies of data processing, transmission, and storage that record the chatter of bodies and machines communicating through pre-established circuits and diagrams. And it is the machinic *organization* of these technologies that constitutes work's journal of the journal. In this scene of writing, the subject is the system of relations between the general chatter of the workplace, its recording and transmitting technologies, and the set of relations between bodies, machines and information. Taylor's rationalization of rationalization—in Seltzer's phrase—becomes work's journal of the journal in the so-called post-industrial workplace.

This textualization of work in the age of the smart machine means that *The Journalist's* journal of the journal is more than a metaphor of cyberpunk writing's scene of the workplace. Work takes place through information technologies and writing-down systems, and the arrangement or organization of these systems constitutes the journal

of the journal, the mother (matrix) of all writing down systems. From this perspective, it is no stretch to say that Gibson's sublime vision of cyberspace is a recording of the office sublime. And if "this was what [Case] was, who he was, his being," this is because in the social factory all of life's content is work (59).

If our writing machines are always at work on our thoughts, as Nietzsche says, this mother of all writing machines—organization—is also at work on our bodies. The general chatter of the workplace, its linguistic production and communicative cooperation, gets written down in electronic mail, interoffice letters, memos, public relations materials, meeting minutes and so forth. These technological products make up the writing surface for the journal of work. These writing bodies make up the writing surface for the journal of the journal.

The environment of the office landscape is shaped by communication flow, and capable, like conversations, of almost total flexibility and reconfiguration. . . . The worker is reconstructed as a demon or sub-routine within the disciplinary matrix, and further reconstructed individually and physically through the use of ergonomic systems furniture that anticipates his or her movements with precleared, frictionless pathways. (Hookway 62)

The office landscaping of the 1950s, described above, appears to descend from the application of Taylorism to the office environment of the 1920s. In *Office Management: Principles and Practice* (1925), William Henry Lefingwell presented an approach to arrange the office environment so that work could be passed from one worker to another without the need for any communication. Indeed Lefingwell's goal is to "insulate" the clerk from "communicative demand" (Zuboff 118-19).

It is perhaps strange then to refer to this work environment as the production of chatter or a journal, if the goal of the arrangement is to reduce its clerks to silence, creating what Zuboff refers to as a "sentient but mute terrain of fatigue and nervous

exhaustion” (123). But clearly the chatter of information, the memos, letters, and records are still passing through this environment. Indeed, the office is made “mute” precisely in order to produce more information. If workers are not quite yet subroutines and demons as they will be in the office landscaping that emerges with the computer in the workplace and the invention of the circuit as a representation, they do constitute a medium for the flow of work. Office workers’ functions had previously required the interpersonal—or what Zuboff calls “acting-with”—skills of management work. These skills are immeasurable and irreducible to routinization, and thus maintain some security and authority in the workplace. Now, as Taylorization is applied to middle management functions, office workers find themselves reduced to laboring bodies whose functions require only “acting-on” skills. Complaints about these jobs are complaints about pain, as the interpersonal terrain becomes the mute terrain of physical effort. And bodies in pain are bodies as the surface of so many inscriptions. Organization writes the journal of the journal on workers’ bodies. As a character in Cadigan’s *Synners* says, “great people leave their marks. Everyone else is left with marks” (42).

### **Silhouettes of Production**

In his “Notes on the ‘General Intellect,’” Virno argues that one of the tasks our situation requires is the tracing of a *silhouette* of this mode of production. It is fitting that cyberpunk fulfills this task so well, as the image of the silhouette recalls the noir and detective fiction style Gibson and his successors appropriated to turn their recordings into commercially viable novels. The tracing of silhouettes, then referred to as “shades,” goes back to the early eighteenth century, where they carried scientific weight. The *physiognomies*, as they were called, told us things from the mere tracing of a person’s head. They helped build up stereotypes with which we could know or make legible the

otherwise indescribable mass of humans on the city streets. With the invention of photography in a later discourse network, mass-market paperbacks called the *physiologies* arrive on the scene, rendering unknowable urban life legible again. One hundred and twenty physiologies appear between 1840-42, and build up “pseudo-scientific portraits of social types” (Ray 27). The detective story later inverts the physiologies, insisting on the value of the particular, rather than the type. Jameson observes that Chandler, writing in the twentieth century in an “era of stable production,” inventories objects, as older detective fictions had; however, now these objects have lost their initial creative energy. They become just part of the noise of the industrial background (640). The situation is thus inverted again. Today, Jameson writes about a “Hunter Thompsonian global tourism” in Gibson’s recent novel, *Pattern Recognition*. Gibson, the first appropriator of the detective style for cyberpunk, is perhaps solely responsible for the genre’s evolution as “a literature of the new stereotypes thrown up by a system in full expansion.” These stereotypes make the undifferentiated mass legible again, recording “new and artificially differentiated *ethnies*,” a process that Jameson argues, is how we “relate to other collectivities” (385). What is distinctive about this style is a “hyped-up” brandname-dropping (386). Is this perhaps the end of the long century of the discourse network 1900? Out of the undifferentiated howl of illegibility as a system first begins to stock the tape of its recording machine, we now arrive on a scene where all objects, indeed all thoughts (insofar as they are fixed capital, i.e., programs or algorithms) are named, registered and filed away with copyright in the vast corporate archives of our that global system. Is this the content of cyberpunk’s form?

## CHAPTER 3 XS

It really comes down to this: if you accept responsibility for yourself you must understand what money is, what role it has in your life and what relationship it has.

—John Cale, *What's Welsh for Zen?*

—It's not all just money!

—You want to sue them for damages, that's money isn't it?

—Because it's the only damn language they understand!

—*A Frolic of His Own*

### **Introduction: Just Tell Them It's About Money**

You will “hear more straight talk in the washroom than you will at twenty board meetings,” Governor Cates tells J R and the Hyde boy. In William Gaddis's 1971 novel *J R*, J R follows this kind of advice in amassing his financial empire. In the process, he often has to explain his dealings to his business associate, Edward Bast, whose failures to understand or to appreciate the subtleties of J R's wheelings and dealings provoke exasperated responses such as “Holy shit, Bast! That's what you do!” Money is shit, represented in *J R* as excremental flow, as Steven Moore observes. In *Marx Beyond Marx's* lesson on money and value, Negri says money and value are the “same shit” (23). “We are not before value; we are in it.” This insight also marks the leap forward in Gaddis's critique of capital from his first novel, *The Recognitions* (1955). There Gaddis poses the problem of the difference between value and money. In *J R*, an innocent subject, the 11-year old title character, is at the center of an immanent flow of money and value as the same shit. Money and value are revealed as simply exploitation. Capitalist valorization is a system that extracts surplus value through exploitation, and hence money is already based on exploitation. They are immanent to each other.

Just tell them it's about money, Gaddis said when asked in 1968 to describe what his then work-in-progress *J R* was about (Moore 63). Critics have picked up on this.

John Johnston describes *J R*'s representation of a new regime of capital in which use value is completely absorbed by exchange value. Johnston further adds that the conventions of *J R* seem to have been developed in order to represent a newer world of corporate capitalism, characterized by the immense productivity of flows of finance and media. Joseph Tabbi also extends Gaddis's observation to the form of his narratives when he compares Gaddis's technology of quotation to the contextualizing power of money. I want here to expand on this approach to money in Gaddis's novel, considering both its representation in *J R* and the stylistic pressures it puts on the novel's form.

It is tempting to read *J R*—if it is in fact “about” money—as about money in a state of “high finance,” where it has liberated itself from production as such, and thus to emphasize the “financial” aspect of the phrase, “*J R*'s financial empire” (Moore 63). But this is not altogether accurate, both in terms of a historical contextualization of the novel and money's representation in the novel. A split occurs or a difference is observed in the cycles of world monetary economy primarily *after* Gaddis's “it's about money” claim and, depending on the accounts, perhaps *after* the publication of *J R*. Prior to this transition, it would be more accurate to emphasize the term “empire” in the phrase, “financial empire.”

### **The Long Twentieth Century**

In *The Long Twentieth Century*, Giovanni Arrighi describes the history of capitalism as a succession of “long centuries.” In each of the long centuries, a different state holds hegemony over the global capitalist system. And the historical cycle of each of these long centuries, Arrighi finds, corresponds to Marx's formula describing capitalist accumulation. Briefly, I summarize the three phases of each cycle as follows:

A first phase, characterized by trade and primitive accumulation, brings in money for capitalization.

Second, that money is invested in constant capital and territorial expansion. This phase, however, is further characterized by falling profits and a reaching of internal limits.

In the third and final phase, money is pulled out of territorial production altogether, and seeks profits in financial transactions themselves.

Arrighi appears mainly interested in the third phase, citing Braudel's "invitation" to see where the real money is made "on the top floor of the house of trade" (25). And I think many critics of *J R* would describe the events of the novel as representative of this phase as well, citing the "paper" character of the *J R*'s empire or the abstractness of what appears to be free-floating money.

Yet, the historically significant events marking the U.S.'s phase of "excessive financialization" take place in the 1970s. Most notably these include the end of the Bretton Woods and Smithsonian agreements in 1973, which ended national currencies' convertible relationship to gold.<sup>24</sup> There are other important events as well, including the Vietnam War that played a part in the collapse of the Bretton Woods system, and the oil shocks of the mid and late 1970s. At any rate, money does not take on the freedom associated with it today until around the time of *J R*'s publication.

## MC

Thus, in *J R*, money's significance may lie outside itself, as does all money in capitalist accumulation; but I would argue that the events in the novel are more representative of this second phase of the cycle. In fact, the period between the publication of *The Recognitions* and *J R* is an immensely profitable MC phase for capital, *or in other words an immense material expansion of capital*—initiated not by

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<sup>24</sup> In addition to Arrighi, see Cohen.

corporate capital, but by military Keynesianism and state planning. Indeed, after World War Two, the U.S. organizes the Cold War and begins a rearmament movement that would help U.S. capital recycle world liquidity in their charge as the spoils of the victor.

This context is perhaps represented by the appearance of characters with military background—like General “Monty” Montcrieff and Major Hyde—diffused throughout the social field, working in schools and corporations.<sup>25</sup> Near the end of the novel, the management-type Mister Duncan chats up Bast in the hospital. While having an enema, he laments threats to the “expanding capitalist formation” (684). And Gaddis’s obsession with organization and cybernetics both represents the thermodynamic management of the planning state, as well as the cybernetic revolution that will have its greatest effects during Arrighi’s third stage.

Perhaps the best example of *J R*’s emphasis on material expansion would be when J R accidentally stumbles upon vertical integration, when he acquires Triangle Products and realizes he can tie together a publishing house with an earlier purchase of land his corporation has started using for timber. As Davidoff explains over the telephone:

there’s no plan to liquidate no, the magazine’s being acquired to round out this whole vertical integration picture wood pulp source through paper manufacture with the Triangle deal into this field growing faster than defense getting the publishing end under one roof. (513)

Vertical integration’s key innovation is the elimination of markets by bringing together different input markets under the same organizational roof. This organizational strategy is one of the major developments of this MC phase of capitalism.

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<sup>25</sup> Hardt and Negri suggest that “postmodern warfare” emerges in conjunction with the changes of the early 1970s. (*Multitude* 39-40).

So, the key point of these representations seems less the abstraction of money, or the detachment of the dollar from the gold standard, than the sprawling material expansion. It is telling that it is only in the final pages of the novel that *J R* realizes where the real action is:

No but that's what I'm telling you either did !! I mean right from the start where I think it's this big deal loaning money off some bank where I find out you can't hardly not loan it off them till by now they've like got everybody by the short hair I mean I should have just went after some bank myself right at the start! (662)

In the third phase of the U.S. cycle, what the bank represents—high finance and self-breeding money—will dominate. If America is what *J R* is all about, then it could also be said that this is because *J R is America*. His grubby fingers that exploit the rules of the game or the letter of the law to amass control of an empire represent the grubby fingers of the U.S. as a nation-state trying to expand materially both its influence and the private capital of its nation, all the while losing control of or failing to see the big picture. After the series of crises of the 1970s, the U.S., unlike in other similar crises during its long century, does not go back to policies of sound money, but instead aligns itself with private financial wealth, seeing this strategy as its only chance to maintain world hegemony in a new phase of capitalism.

### **MM'**

Writing about money, Marx observes that form expresses what the content suppresses. In the case of *J R*, its form, a real-time stream of dialogue, builds what Steven Moore describes as an “irresistible momentum that functions as a formal analogue to the rapid-growth of *J R*'s Family of Companies” (66). I would add that Gaddis's real-time streaming text expresses the rule of high finance emerging from the terrain represented by the content of *J R*'s depiction.

Indeed, the period represented by *J R*'s content is not marked by the supersession of the Bretton Woods agreement, but its proper functioning. As Arrighi argues, Bretton Woods was "far more than a set of technical arrangements." If that was the case, it would have had little more effect than a return to prewar order for the world monetary economy. With Bretton Woods, however, world money is taken over by a network of government organizations motivated by security and power. Operating something like the distinction in *J R* between the letter and the spirit of the law, the organization and control of world money is technically arranged by a network including neutral entities like the IMF and the World Bank, but in practice organized by the U.S. Federal Reserve System in concert with central banks of U.S. allies. The U.S. uses this power to expand U.S. corporate capital overseas.

This perhaps sprawling empire reaches a limit when it has made over in its own image a significant portion of overseas capital—or, when the organizational plan of U.S. capital, which emphasized vertical integration and the elimination of markets, has remapped Europe too completely. Gaddis's writing at this moment represents this order in the content of his novel; however, his form, primarily in a dialogue style with little to no authorial metadiscourse, anticipates the phase of finance capital, characterized by its immanent flows of digital money, free-floating detachment from any grounding representation in convertible gold, and the hypermobility of transnational capital. But there is something else at work here, for which this emphasis on finance capital is only a stand-in. If the real-time stream of text that makes up Gaddis's novel figures the emerging phase of self-breeding money—that is, if time is money and money text—then an entirely absent figure may be the object of Gaddis's novel.

I am talking here specifically about the computer, or more generally the organization of capital centered on the concept of the computer. This constitutes what Marx calls the labor of the general intellect, a productivity of the general social terrain in which systems of knowledge emerge as directly profitable, or productive in their own right. This labor is the predominant form of what Hardt and Negri call immaterial labor, an essential aspect of their description of the current world order.

Gaddis thus brings together two narratives in the form of the text—but with individual fragments as figurations (for example, the Quotron, without which Governor Cates has to “lie here not know the price of anything,” and Gibbs’s unfinished history of the piano player)—that are perhaps competing histories of the present: one in which financialization dominates and production disappears from the scene with the deterritorialization of capital, and another in which production is alive and well, but as the production of bits, rather than atoms.<sup>26</sup>

It seems important to note, then, that in the same year as *JR* is published, Bill Gates and Paul Allen publish a version of the computer language BASIC for the Altair and then form Micro-Soft. In itself, this was not at all revolutionary. Although theirs was considered the best version of the language, BASIC had been invented several years earlier, in part by a former engineer who had used punched-card equipment for atomic weapons design. Months later, however, Gates makes the key discovery that drastically alters the capitalist history of the computer. He charges money for it.<sup>27</sup> In effect, he invents closed source.<sup>28</sup>

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<sup>26</sup> As Nicholas Negroponte argues in *Being Digital*.

<sup>27</sup> On this point, see Paul Ceruzzi’s *A History of Modern Computing*, 226-40.

<sup>28</sup> Of course there was a software industry at this time, but nothing at this level. Generally those software companies emerged to serve specific needs, selling specific programs fulfilling specific functions to

## Arthurization

What, then, is the secret that lies at the intersection of these two narratives that Gaddis brings together in one novel? A clue is given us by Lev Manovich in *The Language of New Media*. “Text,” Manovich writes, “is unique among media types. . . . On the one hand, it is one media type among others. But, on the other hand, it is a metalanguage of computer media, a code in which all other media are represented” (74). Here Manovich suggestively alludes to Marx’s analysis of J R’s purported subject matter. Money is unique among commodities: on one hand, it appears as one commodity among others; but on the other, it is the general medium in which all other commodities are represented. And in the age of postmodern finance capital, Gaddis’s stream of text is akin to the stream of digital capital, in which the circulation time that obstructs labor’s productivity is reduced to a stream of instants: business @ the speed of light.

When a publicity stunt involving “the tribal spirit” and electrical appliances goes awry, Charley Yellow Brook demands of Bast that the thirty million they had agreed on for their land on a twenty-year lease be given in cash. Bast agrees, but J R of course does not see it the same way:

—No but you didn’t already tell them we’ll do it did you? I mean like give them this here whole lump thirty mil . . .

—Of course I did, Charley Yellow Brook yes I gave him my word we’d . . .

—No but look hey . . .

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businesses. Gates’s intervention at the level of the operating system paves the way for software to become primarily a moneymaking deal, because its level appears prior to the execution of all other programs. Moreover, once Gates gets his language installed in all IBMs, he perhaps effaces hardware with software, a problem I will discuss later.

—Look hey nothing all you’ve done from the start is whine about what I don’t do I don’t take an interest don’t take responsibility well this time I have, I gave him my word I expect to live up to . . .

—No but anyways that’s okay you don’t have to live up to anything see because you didn’t have this here authorization. (639)

Bast “loused things up” and got fired. The bad news is that he no longer has the clearance-level to author events. The good news is that nothing is required of him anyway.

This situation reminds me of recent scholarship on security and writing and storage systems. In one such essay on the university, Kittler reminds us that when “knowledge wanders into the private sectors” it:

means secrecy, not openness. The secret manifest in commercial chip designs, operating systems, and application program interfaces (APIs) lies in the fact that technical documentation—in screaming contrast to all technical history—is not published anymore. By virtue of their inaccessibility alone, blueprints and source codes earn money. (253)

If so-called users worry about not being able to live up to their Microsoft Word—to perhaps pay their share and contribute to America—they needn’t worry because, “users shall be treated more and more like computers, that is, as programmable” (253).

Marxist writers of the autonomist tradition have pointed out that the general intellect—no matter what the guarding of algorithms accomplishes—is not reducible to machinery. “In Post-Fordism,” Paolo Virno argues, “the general intellect does not coincide with fixed capital but manifests itself principally as a linguistic reiteration of living labor” (106). In this vein, Nicholas Spencer lauds Hardt and Negri’s move in *Multitude* away from the cyborg laborer of their earlier works toward “machinic” divorced from hardware, calling it a “fulfillment” of their study of the general intellect. In my view, phenomena such as the “social production of language” still need to be

theorized in the context of capitalist production. However much the multitude may be machinic on its own, the general intellect still actualizes much of its productivity through its interaction with such a system of machines, even if, or perhaps especially if, those machines are linguistic or symbolic texts.

When Virno refers to this “linguistic reiteration,” although he sees computing as only one mode of the general intellect, he could essentially be speaking of programming in an expanded sense that would include not only the fixed capital of computers, but also Frederick Taylor’s scientific management. Algorithms, after all, must (in theory) be performable by a human being with pencil and pad. In an essay that shows “Why Machines Cannot Create Value,” George Caffentzis makes programming, considered as a “linguistic reiteration” of living labor, the central object of study. For Caffentzis, the machine studies that emerge around World War Two with the work of von Neumann, Wiener, Shannon, and Turing mark an important transformation that forces us to reassess Marx’s theory of machines. Whereas Taylor’s work on the programming of labor was analog and mimetic, and thus clumsy and inadequate, Turing’s machine theory is digital, and thus offers the perfect simulability of work. In Caffentzis’s phrase, Turing’s machine theory reveals the “mathematics of work” (51).

Because the theory of the Turing Machine shows that any system that produces results that could be the product of computation could itself be simulable by a Turing Machine, the “mystique of skill” is deflated—in other words, scientific management isn’t just for pig iron anymore. Instead, if we generalize this notion of computation and think of the linguistic reiteration of programming as covering *any* rule-governed activity, then,

as Caffentzis explains, all labor that is repeatable and standardized can be mechanized (53). And if all labor can be mechanized, machines must be able to create value.

The problem here lies in defining what we mean by “value.” Marx argued that even if a machine could be invented that would not wear down, and could join forces with other social powers (like language or population) that cost capital nothing, it could increase use value, but not exchange value. It can only preserve whatever exchange value it already embodies. Caffentzis concludes by arguing that since any “well-defined piece of labor” can be simulated by a Turing Machine—and thus hand value-creation solely over to the side of machinery—the creation of value must lie elsewhere. This (non)site of value creation is a gap between labor power and work. What gives living labor its unique ability to author value is “its capacity to refuse labor” (54).

I will come back to Caffentzis’s claims in later chapters when I look at larger scales of work and value creation. For now it will suffice to say that Caffentzis may be right, but even then he’s only fleshed out the problem of the end of work theories he sets out to critique. This is because, in following Marx’s labor theory of value, he concedes the ability to increase use value to the (what was for Marx, a distant) figure of a machinery that required little or no labor. Even if such machinery could not create additional exchange value, it could go on creating use value. Machinery only makes money by reducing the value objectified in commodities, a strategy that works at the scale of the individual capitalist, but not at the scale of the entire realm of capitalist production. In the last case, the introduction of greater amounts of machinery, which reduces amounts of living labor going into the creation of commodities, creates a downward pressure on the average rate of profit. Machines cannot create value, because they cannot create

profits; and thus, so the theory goes, they cannot create wages either. Work, detached from its apparent production of necessary goods, reveals itself simply as command.

### **Money is Text, or What is Software?**

But if money is just exchange organized for exploitation, and money both is and earns money, perhaps so too are “blueprints and source codes” forms of money. Perhaps this is the secret of the intersection of finance and computing in Gaddis’s real-time stream-of-dialogue. Just as oil operates as a medium of measure for the value of all energy commodities, secret technical texts operate as the medium of measure for all textual, or perhaps even all symbolic production. And it is this kind of production that is predominant today.

*J R*, in which time is money and money text, reminds us that a particular commodity must become the subject of money. Many of the traits Marx finds in precious metals could be applied to text in this post-Fordist digital scene: malleability, uniformity, incorruptibility. But security is also vastly important in picking the proper money-subject. This is why Marx also notes gold’s gravity, its retrievability only through exchange, and its production only through an art “which requires for its full development the appearance of so many sciences and collateral arts” (179).

Since Kittler told us there is no software, most critics have simply pegged the statement as exaggerated techno-determinism. This is why, in a recent essay, electronic poet and literary theorist John Cayley is relieved to note that the sentence following that statement adds the qualifier that, rather, there would be no software if computers were not surrounded by an environment of everyday languages.

They are so surrounded. It is impossible to so-called-humanly conceive of them otherwise, and to work with, against and amongst them. Not only that, but all the other media, of sound and light, are inside them, or *using the*

*same equipment* (in more so-called human terms). Under these conditions, we cannot bracket or stun the materiality of language [. . .] The alternative is to abandon rich literal abstraction for the machinic banal or the machinic unconscious or the machinic real. (“Literal Art”)

The qualifier allows the poet to get back to the materiality of language. Cayley thus misses the point which I think J R gets. The software of everyday languages that Cayley thinks saves him from so-called techno-determinism is made up of, in Kittler’s words in the very next sentence after the passage Cayley quotes, “letters and coins . . . books and bucks” (150).

The point is thus not that because software is surrounded by everyday languages, we cannot stun the materiality of language, nor does Kittler advance the proposition that we cannot stun it and thus save or justify our engagement with literal art. Rather, the point is that software is capital. There would be no software without surrounding systems of everyday languages, and these systems are made up not just of letters and lines, but also of bucks and coins. The two converge in the so-called information economy. Because we have capital, or because we have money, no one follows Turing’s example and reads machinic output in hexadecimal numbers. Instead, we interface between so-called ordinary language and formal language. One possible outcome of this arrangement has been described by Matthew Fuller, who notes that Microsoft’s alliance with the company Real Names means, potentially, that typing a brand name or a string of characters that equals a trademarked name automatically links to the brand’s web site. Literally, then, Microsoft Word channels mechanized writing into the service of capitalism.<sup>29</sup>

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<sup>29</sup> See “It looks like you’re writing a letter: Microsoft Word” (137-63) in *Behind the Blip: Essays on the Culture of Software*.

Is this not the lesson of the adventures of software patenting in the United States? For this reason, Kittler argues that the “ongoing triumph of software is a strange reversal of Turing’s proof that there can be no mathematically computable problem a simple machine could not solve” (151). By contrast, the physical Church-Turing hypothesis—which states that every physically computable function can be computed by a Turing machine—makes physical hardware into the algorithms necessary for its computation. That is, the hypothesis “has finally gotten rid of hardware itself” (151). And software fills the empty slot.

Kittler best illustrates the wide-ranging implications of software’s triumph through his description of IBM’s concept of “logical depth.” A “new measure” Kittler calls it, thus drawing attention to it as a development in which Marxist philosophers of work should have interest. The concept of logical depth locates the “value of a message” not in its information—its unpredictable parts—nor in its redundancy. Instead, IBM’s pursuers of logical depth locate a message’s value in “the amount of mathematical or other work plausibly done by its originator, which the receiver is saved from having to repeat” (Charles Bennett qtd. in Kittler 152). “Thus,” Kittler ironically observes, “logical depth . . . could advantageously replace all the old, everyday language definitions of originality, authorship, and copyright in their necessary inexactness, were it not for the fact that precisely this algorithm intended to compute the cost of algorithms in general is Turing-uncomputable itself” (152).

I read these developments in software as resistances to the threat *against* work posed by machines. As I described above, the problem of programming—from scientific management to assembly line robots to the streams of the machinic banal that can run

factories—poses a problem for the capitalist by posing a threat to capitalism as a whole. The introduction of such technology offers greater profits for the individual capitalist who can first take advantage of it, but at the expense of spoiling the party for all the rest. The average rate of profit falls, because only living labor can create surplus value. Paying attention only to the most successful capitalists (as do today's publications) obscures this point. Actually the most important work done by capitalists to ward off this crisis is exemplified by work like IBM's pursuit of logical depth, precisely because it stops short of pursuing the machinic banal. "Logical depth" is capitalist-speak for chickening out, by not pursuing the use of machines to the end, or to the point that the operation becomes fully machinic—or, in the words of the Physical Church-Turing Thesis, "unharnessable." IBM thus seeks to save the social necessity of exchange value by preserving a human measure for work. Instead of Caffentzis's location of the worker's possibility of refusing work—i.e., of refusing programming—we are faced here with the capitalist's refusal of its function (work, of course, would be the last word you would expect to see here)—i.e., the maximization of profit through the increase of its organic composition of capital (ratio of constant capital to variable capital). We can thus oppose IBM to Bill Gates's Microsoft. Whereas IBM in bourgeois computer history narratives usually only gets to be a lesser version of Xerox (i.e., a failure) and Gates is always the winner, IBM is the one who anticipated the wave of the future, and thus in actuality capital's success story. Fuller's ominously-told tale of Microsoft's Word-automation is thus more ambiguous than he would lead us to believe.

To return then to *JR* and make some kind of summing up on its stylistic anticipation of the transformations of finance and computing for capitalism, I want to cite

John Johnston's excellent study of the novel in his book *Information Multiplicities*. Johnston decides that *J R* understands he has to function as a "switching mechanism" rather than author, and thereby offers an exemplary performance of what Johnston describes as a response to the new conditions of the opposition between art and capitalism. *J R*, in Johnston's estimation, goes farther than any other novel in mimicking noise, and resolves the technical problem of modernism's disappearance of the author by becoming a device that performs the "recording of delirium by machinic means" (155). Neither artist nor inventor, Gaddis "engineers" a writing machine (161). Gaddis's achievement, then, is not only the creation of the streaming text of computing and finance, but to take it toward the level of hardware, which for Kittler is the chaos of real numbers, and which could be translated as the general social brain described by Marx.

If *J R* is a "switching mechanism," a machinic opposition to the everyday language of software, then we might read the following passage as the machine's rejection of the humanist poet:

. . . I mean like this here night Mrs. Joubert grabs me to make me look at the sky where she's pointing see back there? that top of that like round white thing lit up back of those trees back there she's holding me against her tit pointing at it so I can't hardly breathe telling me see the moon over there coming up? is there this millionaire for that? and I, I duck away and she's pissed off at me too it doesn't matter she says why couldn't, I mean why can't anybody just . . .

—But she's can't you see what she, why did you duck away! can't you see what she was trying to tell you she . . .

—What tell her it's this top of this here Carvel icecream stand? tell her does she want to bet her ass if there's this millionaire for that? (661)

### **Every Profession is a Conspiracy, or What is Hardware?**

"Every profession is a conspiracy against the public, every profession protects itself with a language of its own," Harry, a corporate lawyer, claims in *A Frolic of His*

*Own* (1994). The subject of Gaddis's last full-length novel is the language of law, and, more specifically, the legal language of copyright and the protection of intellectual property. The novel's main character, Oscar Crease, sues a director and film company he claims stole his Civil War play for their movie, *The Blood in the Red White and Blue*. The case meets resistance from his sister Christina and her husband Harry. Despite the fact that Harry works in corporate law, he advises Oscar, "you can't copyright history, you can't copyright an idea" (18). Christina tries to deter him with the more practical observation that he cannot afford to pay the legal expenses if he loses. After Oscar loses the case but wins the appeal, she scolds him:

—the way you're waving that decree around I thought it might have something to do with money.

—Well of course it does! Because that's the only language they understand . . . the only way I can be vindicated. (370)

Christina also accepts this view, telling Harry earlier in the novel that money is "the only common reference people have for making other people take them seriously as they take themselves" (13).

However, in one of the few interruptions since *The Recognitions* of the flow of dialogue in Gaddis's novels by a narrator's voice, we see Oscar's battle to be taken seriously as absurd; not because he shouldn't be taken seriously or because the director didn't really steal his play (he almost certainly did), but because of the field of civil law and its medium itself, whether it be letters or coins, words or money:

. . . civil law in its majestic effort to impose order upon? or is it rather to rescue order from the demeaning chaos of everyday life in this abrupt opportunity, as Christina has it, to be taken seriously before the world, in an almost inverse proportion to their place in it, their very names in fact and the inconsequential nature of their original errands . . . in an almost inverse proportion to the millions, billions in settlements, the frivolous legal heights

of corporate anonymity . . . haunted by the sense that ‘reality may not exist at all except in the words in which it presents itself.’ (28-29)

Indeed, Oscar alternately appears confused by the complexities and absurdities of the legal system and excited by the turns of the case that go his way. In a “treatment for a motion picture on software,” written on commission for IBM in the early 1960s, Gaddis similarly takes a simple Y/N binary and makes it into a bewildering labyrinth of language:

Crossing the street, for example, the Narrator goes on, as we see on the screen the man from the film’s opening player piano sequence, now poised on the curb of an empty two-lane street. You simply look both ways and, if nothing is coming, you cross. But . . . the Narrator continues, as we cut to the same figures poised on the curb of a crowded street, and the Narrator enumerates possible factors involved in the solution to this pedestrian’s problem. The distance across the street and his estimated time in crossing it, for example, figured against the length of the light and the speed of the traffic. Then, as the Narrator adds possible variables, these appear on the screen. (20)

As Tabbi notes, Gaddis turns this simple “film sequence meant to illustrate the concept of information science” into “black humor” (15).<sup>30</sup> The simple decision confounded by variables ends with an accident when the pedestrian tries to solve the problem through trial and error: “the encumbered pedestrian steps from the curb, cars come head-on into the camera, there is the blare of horns and squeal of brakes, and silence” (21).

The film then transitions with the narrator observing that any “computer language and logic system can” make such a decision by trial and error:

As we have noted, the Narrator continues, almost any problem can be solved that can be adequately stated. Preparing this detailed step-by-step statement of data and instructions, and including in it every variation of every possible contingency, is what we have called programming. (21)

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<sup>30</sup> See Tabbi’s editorial introduction to this section of *The Rush for Second Place* (2002).

Gaddis goes on in the treatment to describe both the programming of every behavior in which action can be defined and the emergence of a software industry. In concluding the film, Gaddis appears to reformulate the problem Marx has posed of the place of the laborer in relation to machinery:

Developments in both hardware and software point to a future near at hand in which computer processors will write the programs, from language suited to the user.

These growing demands upon the growing capabilities of these complex language and logic systems have also reduced Operator intervention, at the same time heightening the Operator's responsibility and importance, and the demands on his knowledge and training, for the proper functioning of the system.

The film concludes with a montage made up of shots from earlier scenes depicting problems and problem solving, as the Narrator points out that, however complex it becomes, the most advanced information system will still have human programming as the source of its problem-solving function.  
(25)

Here Gaddis runs through the different alternatives found in Marx's theory of machines and the meaning of capital's trend toward further mechanization. The trend itself points toward a future in which the machine itself does the work, perhaps all of the work. On one hand, then, the human is removed from the equation, becoming a mere watchman whose ability to intervene in the labor process has been reduced, while increasing that laborer's responsibility. On the other hand, Gaddis sees human labor never being eliminated from the equation completely, always "the source" or the engine of the computer's labor. Gaddis describes the same dilemma Zuboff faces when (in the late 1970s and early 1980s) she tries to decipher the meaning of the transformation of work caused by the incorporation of computing as the principal organizing element.

What I want to describe here, however, is the way computing appears in *A Frolic of His Own*. If in *J R*, computing and finance appear primarily in the form of the novel,

while the content is more regressive, describing as it does an earlier phase of capitalist accumulation, it is tempting to apply this disjunction as a heuristic device to *Frolic*. We immediately run into the problem, however, that *Frolic* does not appear to make the stylistic leap that *J R* does in relationship to *The Recognitions*. This is still a novel composed almost entirely of conversation, with transitions signaled through movement—as when a character drives between Oscar’s dilapidated mansion in the country and Harry and Christina’s apartment in the city—or media—as when Oscar falls asleep watching television. Perhaps the only shift one could point to is Gaddis’s enfolding of different texts or types of writing into the stream of novelistic prose. Gaddis injects complete legal cases directly into the text, set off only by font style. But even this is merely a quantitative leap, as Gaddis does the same thing in *J R*, incorporating newspaper clippings and handwritten lists directly into the text.

It seems to me that the primary innovation of *Frolic* is that it explores software and programming *not* at the level of the computer, as Gaddis may have understood it at the time of *J R*’s writing (e.g., the Quotron), but at the level of the everyday environment as described by Kittler in consisting of letters and coins, books and bucks. Gaddis thus frees the machinic delirium of *J R* from its subordination to finance by linking finance with the human language of law, but also the languages of every profession, everywhere caught in the halfway point between pursuing the machinic route through capital to the other side and resisting incorporation.

This is not to say that legal language is not itself a writing machine. As Oscar’s lawyer, Mister Basie, describes the process, “your money every step, every step you take, disbursements, stenographers, transcripts, all that plus your legal fees” (103).

Thus, a vast machinery is put into place, an arrangement of machines and flows into one apparatus. Yet, Gaddis's focus is on the language of law and its humanist pretensions. On one hand, with Oscar's case we have what turns out to be the incredibly muddy problem of trying to program copyright, or to pin down the rules for deciding what can be copyrighted and what constitutes plagiarism. We see this in comical lines, as when Harry tells Oscar that he can't copyright the Civil War, and passages, such as the transcription of Oscar's deposition, in which the lawyer Mr. Madhar Pai (who works for Harry's law firm) tries to insinuate that Oscar's quoting "homage" to Plato could be plagiarism, and gets him to agree that similarities can exist without copying. Madhar Pai also uses Harry's dismissive line, asking, "you don't claim any proprietary interest in the Civil War, do you?" (181). On the other hand, the profession of law is described as one example of every profession's conspiracy against the public. In each case, we have the problem of security. As I argued above, this is the perhaps the most important characteristic in determination of the money-subject.

Between the time Oscar initially loses his case and then wins his appeal, Christina takes out her frustration on Harry, who responds (probably in frustration himself with the fact that Christina always appears to be taking out her stress over Oscar's situation out on Harry) by implying that Oscar asked for it. No one asked him to write a play after all:

. . . He goes off on a frolic of his own writes a play and expects the world to roll out the carpet for...

—a frolic! have you ever seen anyone more deadly serious?

—just a phrase comes up in cases of imputed negligence, like when an office worker pokes someone's eye out shooting paper clips with a rubber band, the employer's not at fault

—my god Harry I'm not talking about paper clips!

—look, Oscar goes off and writes a ‘longwinded’ play about his grandfather, he wasn’t hired to do it, no one paid him for it, does he keep at it, write another play? no, he lets it devour him. This isn’t about justice. It’s about resentment. . . .

—but I mean isn’t that really what the law is all about? and she straightened up as though to disown the slur in her voice setting her glass down emptied—where it’s all laws, and laws, and laws, and everything’s laws and he’s done something nobody’s told him to, nobody hired him to and gone off on a frolic of his own I mean think about it Harry. Isn’t that really what being the artist is finally all about?

—I’ve thought about it he muttered almost to himself . . . I’ve thought a lot about it, melting away like the fixed resolve that had always seemed to map the hard features of his face . . . (348-49)

Here we are back to the programming problem raised by Caffentzis in his discussion of Marx’s theory of machines. Affecting the validity of the lawsuit in Harry’s eyes is the fact that “no one told” Oscar to write a play.

The same issue is raised during Oscar’s deposition, when Mr. Madhar Pai infers that, because Oscar does not write plays as his profession, writing is his hobby. “You’re not a playwright for example, a professional playwright” (168). Oscar’s lawyer, Mister Basie, objects:

The word amateur starts out to mean doing something for the love of it, that’s the root, doing it for its own sake without a price on everything. Now these days where there’s a price on everything, what’s not worth getting paid for’s not worth doing. You say something’s amateurish means it’s a real halfassed job. You want the best you hire a professional. A real pro, as they say. (173).

Basie adds to this an example from the arts, the painter Vincent Van Gogh, who sold only one painting in his lifetime. Basie asks Madhar Pai, and perhaps the novel’s readers, “that make him an amateur? Some hobby he had, turning out these halfassed pictures on Sunday afternoons?” (173-74). Copyright and intellectual property are matters of security in *Frolic*. A profession must protect itself from the amateurs in order,

as Gaddis often puts it in the novel, to “rescue the language”—that is, to rescue the money.

There might be a temptation to dismiss *Frolic* as less formally interesting than *J R*, but it seems to me that the move away from Johnston’s “machinic delirium” to the “everyday” language of professional discourse—in this case, primarily law—is necessary to draw the correct distinction between hardware and software. Just as with Marx’s theory of machines, Gaddis’s novels put the human on the side of the machine rather than against it. The “frolic” of actual invention is seen as a resistance to work—does he keep at it, write another play? did anyone pay him for it?—and thus restages a common theme for Gaddis: the role of the artist in capitalist society. But the role of the artist also becomes simply the role of the worker, or the role of the human. The artist is not threatened by the cybernetic revolution anymore than the worker is, rather the artist is threatened by the avoidance of its threshold, the avoidance of real computing. Conspiracies of professions equal so many pursuits of “logical depth” and “one way functions,” always hiding computing from itself, always avoiding full confrontation (or collaboration) with the machine.

## CHAPTER 4 M

Everybody is in too many pieces  
—Gang of Four, “We Live as We Dream, Alone”

### **Introduction: The Dissolved Worker**

A key tenet of the end of work thesis is that the body has been banished from work, made into the rotting corpse of cyberpunk's meatspace while its immaterial soul lives on in a new machine.<sup>31</sup> As automation and information technology (IT) replace human labor, material work as a transformative transaction between human labor and material world increasingly disappears.<sup>32</sup> The dominant worker of industrial society, the skilled craftsman, has been progressively dissolved, along with his various skills, through the technical division of labor, automation, numerical control, and techniques of scientific management. According to Anson Rabinbach, in his classic study of the productive body's rationalization in social modernity, *The Human Motor*, this disappearance of the working body marks the end of “work-based society.” For nearly a century—roughly from the mid-nineteenth to the mid-twentieth century—scientific discourse wrote the body as a motor converting energy into work. Late twentieth-century thought, however, focuses on a new discourse that concerns itself not with maximizing the body's energy, but with anxiety over the body's disappearance. In his final chapter, titled “The End of the Work-centered Society?”, Rabinbach writes, “The displacement of work from the center to the periphery of late twentieth-century thought can thus be understood by the disappearance of the system of representations that placed the working body at the juncture of nature and society” (300). At the scale of the

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<sup>31</sup> See *Neuromancer*. “Now he slept in the cheapest coffins, the ones nearest the port, beneath the quartz-halogen floods that lit the docks all night like vast stages” (6).

<sup>32</sup> See Andre Gorz, *Capitalism, Socialism, and Ecology*.

body, whose living labor is the medium of production and capitalist accumulation, the end of the human motor metaphor marks the end of work.

Work, according to Rabinbach's thesis, loses importance when images, communication, and cybernetic systems of self-regulation replace physical work. To a large extent, this work does not involve the body—at least not the body laboring in a scene of effort, as Shoshanna Zuboff describes.<sup>33</sup> Since the time of Rabinbach's writing, Michael Hardt and Antonio Negri have named the labor force that works with these materials "immaterial" or "communicative laborers," and, most recently, in *Commonwealth* "biopolitical laborers." Hardt and Negri claim immaterial or biopolitical laborers are the dominant class of labor, and this work force includes communicative labor that creates knowledges, affects, and language. Their conception of immaterial labor captures a broader class of labor than do earlier and competing "post-industrial" categorizations such as knowledge workers, symbolic analysts, or the creative class.<sup>34</sup>

As media and media machines increasingly become the means of production, media studies attends to this dissolution. The characters of these narratives are not immaterial laborers, however, but authors and readers. Yet, if work increasingly involves images, symbols, and cybernetic systems of communication, as Rabinbach claims, then perhaps the human-computer interactions involved in reading a work of e-literature, for instance, resembles—or in fact qualitatively is—the labor of the dominant force named by Hardt and Negri. Moreover, perhaps the texts and affects produced in such

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<sup>33</sup> See the second chapter of this dissertation.

<sup>34</sup> The term "knowledge work" has become commonplace, but can be traced back to the economist Fritz Machlup and the popular management theorist Peter Drucker. I will discuss knowledge work further in this chapter. On the term "symbolic analysts," see Robert Reich's *The Work of Nations*. On the term "creative class," see Richard Florida's *The Rise of the Creative Class. And How It's Transforming Work, Leisure and Everyday Life*.

interactions resemble the commodities or products of surplus labor in capitalist production. Media theorists have been expanding the concept of reading and writing, as well as the concept of the text, considering other semiotic components, such as animation, motion, video, audio, software functionality, and kinesthetic involvement, as objects for literary interpretation (see Hayles, *Writing Machines*, chapter 2). Since media theorists investigate, in part, the dominant means of production, their scholarship on the relationship of authors and readers to media machines simultaneously investigates the relationship of the immaterial laborer (in the information and affective senses) to the material means of production.

In this chapter, I read the fiction of Shelley Jackson, primarily her hypertext *Patchwork Girl* (1995), in order to show that what appears as the obsolescence of the body is in fact actually a much more profound interest in the body for capital. Why, after all, should the obsolescence of “corporeal work” mean the obsolescence of work itself? In this chapter, I offer a more complex investigation of this question, which can help us understand precisely what has changed in the shift from Fordism to post-Fordism and from an industrial economy to an information economy. First, I investigate whether the obsolescence of “corporeal work” means the obsolescence of work itself. Here, I discuss the recent history of the material laborer’s dissolution and eventual recombination into the new figure of immaterial laborer. Second, I explore whether the human motor metaphor’s displacement is followed by another system of representations capable of maintaining a work-based society—either without the body or simply with an entirely different notion of what the body might be. Here I use the concept “remediation,” which I take from Jay David Bolter and Richard Grusin’s book of the same name. Bolter

and Grusin explain the way media refashion themselves in relation to other media. Furthermore, in his book *Biomedía*, Eugene Thacker provocatively extends the concept as part of his re-thinking of the cyborg as biomedía. Ultimately, I believe that reading Rabinbach's end-of-work thesis in this way resolves some of the problems he raises, while at the same time raising new questions about the body as the productive medium of capital—especially concerning the ability of immaterial labor to sustain capitalist expansion in the postmodern economy.

### **From the Human Motor to Biopolitical Labor**

In *The Human Motor*, Anson Rabinbach writes a history of modernity centered on the laboring body and the discourse that writes labor as energetic man, whose labor is “a natural force among others united by the universal equivalence of *Kraft*” (72). The appearance of this figure is profoundly illustrated by the emergence of fatigue as a vital concern. Prior to 1860, there are almost no scientific or medical studies of fatigue. By 1900, however, the U.S. Surgeon General lists over 100 studies of muscle fatigue, and brain exhaustion, nervous exhaustion, spinal exhaustion, and asthenia become popular objects of study (20). In Germany, according to Rabinbach, this mania with fatigue grew out of the “dizzying ascent to industrialization and economic triumph after 1895” (23). It wasn't only the industrialists that worried about it though. Liberal reformers in the 19th century also concerned themselves with fatigue, and saw the health and energy of the worker as a crucial element in the “national calculus” (24).<sup>35</sup>

The metaphor of “the human motor”—in Rabinbach's words, “a striking image that illuminates an underlying affinity between physiology and technology”—stands for a shift in the perception of work and labor and the body at this time. In the first half of the

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<sup>35</sup> Also see Friedrich Kittler, *Discourse Networks 1800/1900*.

nineteenth century, the literature of labor focuses on “idleness” as the primary resistance to labor. The idler threatens the noble figure of the worker and constitutes a sin against industry. Napoleon claims in 1807 that “the more people work, the fewer vices they will have” (29). With the rise of the factory system and large-scale industry, the Christian proscription against idleness lost its appeal, and was replaced by the concept of internal regulation: “the image of a body directed by its own internal mechanisms, a human ‘motor’” (35). In the second half of the nineteenth century and into the early twentieth century, a European science of work emerged, similar to Taylor’s scientific management, in that its goal was to mediate the antagonism between labor and the capitalist. This antagonism was seen as a negative drain on the national energy that could be prevented through the “neutral” technologies of the rationalization of the body.

After nearly a century of scientific discourse centered on the body as a motor converting energy into work, and labor power as the medium of productive modernity, concern with maximizing the body’s energy gave way to anxiety over the body’s disappearance. Rabinbach credits the “European automation debates” of the 1950s with introducing the notion of the disappearing body into sociological discourse. Summing up the arguments of a few well-known proponents of the theory, Rabinbach writes, “all agreed that whatever the future might hold, it was not to be dominated by human labor power” (299). From this point forward, work loses its place as the organizing center of society, because “the declining significance of industrial work as a paradigm of human activity and modernity” means the declining significance of work itself. And this loss of meaning occurs when the body as the medium of work disappears from the scene.

When the human motor's enframing discourses of energy, fatigue, and rationalization lost their explanatory force, work could no longer save a "system of representations" responsible for placing the working body at the juncture of nature and society (300). Thus, work declines in importance when it becomes no longer possible to view the body as a triumphant converter of energy into work.

Rabinbach names a diverse set of characteristics signaling the turn away from a labor-centered society and from the human motor (296).<sup>36</sup> The relationship of these characteristics—such as the decline of working-class movements and the appearance of new social movements outside of the workplace—to digital information or to knowledge work, and their relationship to each other, is not immediately clear from such a summation. For example, is the existence of new social movements organized around the extension of social or political rights or gender and race issues a contemporary but unrelated phenomena external to capitalist production? Do these movements represent a new context that has replaced the issues of the trade unions, like shopfloor management or wages; or do they represent a new medium that continues to express a similar content as that of the trade unions of the first part of the twentieth century? Do new forms of sociability and communication emerge as a turn away from labor-centeredness, or do they represent an extension of capitalist production more fully into these areas? Does not the rise of interest in cognitive studies indicate deeper interest in the human motor, a redefinition of it for a cybernetic era of capitalist production, rather than a turn away from it? The question, then, is why the obsolescence of "corporeal work" is the same as the obsolescence of the work-based society. Why is the

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<sup>36</sup> Rabinbach cites the work of Daniel Bell, Anthony Giddens, Jürgen Habermas, Claus Offe, Alain Touraine, and Andre Gorz, as well as Ralf Dahrendorf.

displacement of the body from physical production—here understood as industrial production—not merely a change in the nature of work, the human motor metaphor replaced by another system of representations capable of maintaining a work-based society? And, finally, if the “working body” is no longer at the juncture of nature and society, where is it placed?

The new figure of labor, the immaterial worker, captures the ambiguity of Rabinbach’s thesis, both supporting the notion of the immateriality of communicative labor and suggesting that this may in fact signal a deeper interest in the body, through the forging of an even stronger biopolitical link. In *Multitude*, Hardt and Negri define immaterial labor as “labor that produces immaterial products, such as information, knowledges, ideas, images, relationships, and affects” (65). It’s the inclusion of the last two products that makes Hardt and Negri’s categorization of the hegemonic form of labor much more broad than conceptions of the new landscape of work focusing on knowledge work. The concept of affective labor, as Hardt and Negri use it, captures the much larger group of service workers. This class of work has always been a thorn in the side for optimistic proponents of the argument that a knowledge economy can absorb the displaced class of manufacturing laborers, since this last segment of the workforce is growing much faster. For instance, in *The End of Work*, Jeremy Rifkin cites a 1993 study that showed only 20% of “retrained workers” found jobs paying as much as 80% of their former salary (36). As I discussed in the introduction, however, such a trend marks an end of work for a larger reason, in that it signals a crisis for capitalist growth. Such statistics provide further evidence of the inability of a capitalism based on the microchip to expand capital.

Three key aspects of Hardt and Negri's concept of immaterial, or biopolitical labor come into play then as we move out of what I'm calling the XS scale of the microchip and financial flows of capital (which already represent the movement of capital away from production), and into the M scale of the body-as-medium. These are the role of affect in the new hegemonic form of labor, the feminization of work, and the relationship of materiality to Marx's law of value via the concept of productive and unproductive labor.

A number of critics have analyzed Jackson's emphasis on the body and the link between its materiality and the perceived immateriality of writing. These include, most notably, N. Katherine Hayles's reading of *Patchwork Girl* in her essay "Flickering Connectivities" and its revision in *My Mother Was a Computer*, as well as a short description in *Writing Machines* of *Patchwork Girl*'s role in teaching Hayles how to read in an electronic environment.<sup>37</sup> Indeed, Hayles neatly connects the intertextual narrative of *Patchwork Girl* to Mark Rose's history of copyright as a history of literary production's disembodiment in which the abstractions style and sentiment became the product itself. We have here, then, an interesting convergence. On one hand, *Patchwork Girl* can stand for what Rabinbach sees as the linked fates of the body and work in the move toward obsolescence. This is because literary production is knowledge production. Moreover, literary production in an electronic environment incorporates the computer more integrally, and the computer is the key tool of the obsolescence narrative. On the other hand, *Patchwork Girl* can stand for the inverse, emphasizing the role of the body

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<sup>37</sup> Other examples that have informed my reading include Terry Harpold's *Ex-foliations*, George Landow's *Hypertext 3.0*, Maurie-Laure Ryan's *Avatars of Story*, Carolina Sanchez-Palencia Carazo and Manuel Almagro Jimenez's "Gathering the Limbs of the Text in Shelley Jackson's *Patchwork Girl*," and to a lesser extent Astrid Ensslin's *Canonizing Hypertext: Explorations and Constructions* and Lance Olsen's review of *The Melancholy of Anatomy*, "Embodying the World."

and materiality as necessary components of knowledge production. Some critics have even claimed that Jackson reveals *Patchwork Girl's* electronic medium as reviving writing's materiality.

### **Patchwork Girl**

Jackson's hypertext *Patchwork Girl* is a resurrection tale. One of the first lexia a reader will open says, "I am buried here. You can resurrect me, but only piecemeal. If you want to see the whole, you will have to sew me together yourself" (graveyard). I read Jackson's tale as an allegory of the resurrection of the dissolved worker as the biopolitical laborer. The patchwork girl's offer "to see the whole" expresses the desire to find the corporeal body that goes missing at the end of Rabinbach's narrative. However, making good on that offer is a difficult task, as the recombined worker made out of the subdivided-until-banished industrial worker may be a monstrous figure, swarm, or network, and may disappear and recombine in various other guises and other scales. Jackson doubles this offer in its WYSIWYG opening view, depicting a naked woman, limbs out provocatively, as if to say "what you see is what you get." At the same time, Jackson frustrates that desire. In addition to its intertextual entangling, *Patchwork Girl* captures this play of overlapping and recombination in its form. As Terry Harpold observes of Jackson's "revision of the GUI's techniques of discovery," "the windows are procedurally, semiotically, and grammatextually *entangled*; now one (complex object), now two" (159). Other critics have focused on the fragmentation and intermingling apparent in *Patchwork Girl*. For instance, in "Gathering the Limbs of the Text in Shelley Jackson's *Patchwork Girl*," Carolina Sanchez-Palencia Carazo and Manuel Almagro Jimenez point out the autonomy of the limbs, which eventually—and interestingly for a resurrection tale—mount an "insurrection" (122). Jackson herself says of the medium:

“hypertext permits me to write the way I ordinarily would, in related fragments with no overarching design” (“Stitch Bitch: The Hypertext Author as Cyborg-Femme Narrator”).

Though fragmentation is unquestionably a key theme in *Patchwork Girl*, a clue to what is occluded if this aspect is over-emphasized is evident in Carazo and Jimenez’s reading. The authors point out Jackson’s use of Haraway’s “cyborg iconography” and terminology “to bring the description of the body to a new scale, that of the cell” (119). Later, they link this microscopic scale to the “fragmentariness” of hypertext’s intertextual possibilities and to Jackson’s “dismantling” of unity (127-28). The importance of scale is a provocative point, but their emphasis on the fragmentary leaves us at the microscopic scale, while the scale of the cell is similar to the scale of flows of information. As Hayles’s reading of the electronic environment and Harpold’s reading of Jackson’s use of the GUI suggest, however, what is important is the ways the body is contextualized in this new environment. Similarly, in order to make the dialectical leap from the text to the economic and technological environment that determines it, one has to shift from what *Patchwork Girl* has to say about literary production to what it might say about knowledge production.<sup>38</sup>

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<sup>38</sup> Discussions of electronic literature that over-emphasize the newness of the medium through a narrative of the user’s interaction with the device or interface seem to me to lead to readings that pile up fragmentary details about how one works the text, but no meaningful connection to larger issues of the material world. For this reason, I appreciate Hayles’s *Writing Machines* for what it attempts to do, which is connect the literary production to the situation that produces it, or to the world that determines it. Yet, its emphasis on the newness of the electronic environment and the invention of neologisms for dealing with it (although I think the lexicon she develops is necessary to contextualize her argument in its polemic against narrowly aesthetic and narratological approaches, most notably Espen Aarseth’s *Cybertext*) tends to obscure its potential usefulness and significance in putting a digital studies approach in contact with Jameson’s cognitive mapping or with Kittler’s more detailed Foucauldian approach to analyzing the technologies that determine the facticity of texts. Each reading in *Writing Machines* finds the same argument in a different text: that post-humanistic subjects are non-originary and are in part produced by inscription technologies. Clearly, then, this is more of a founding premise of her approach, not the end point.

I read Jackson's text as a narrative symbolizing the combination of the information worker and the emotional worker, the worker who manipulates symbolic content or otherwise does knowledge work, and the worker who provides affect/emotion/heart as in the service industries. The fact that the growth of the latter's class is a consequence of the capitalist use of machinery was already clear to Marx in the first volume of *Capital*, where he pointed out that the increasing adoption of machinery in manufacturing resulted in the growth of service workers such as maids and butlers, who already in Marx's time had come to outnumber the declining workforce of textile manufacturers.<sup>39</sup> *Patchwork Girl* thus has an interesting surface connection in that Jackson links the patchwork textile work of quilting/sewing/stitching to the information work of writing. We see in the linked passages {sewn} and {written} an example of what Jackson describes as making the argument through the link rather than words.<sup>40</sup> Not only are the lexia linked, each lexie begins essentially as the same piece of text. Each describes Mary Shelley's work creating the monster/tale. In {written} she's "writing deep into the night by candlelight, until the tiny black letters blurred into stitches." In {sewn} she's "stitching deep into the night by candlelight until the tiny black stitches wavered into script." The reader goes through both lexia in order to continue with the story.

In linking {sewn} and {written}, Jackson connects the female and reproductive sphere of emotional work with the male and the productive sphere of information work. The former traditionally does not involve a direct exchange between labor and capital, as the woman's tasks of caring and nurturing for husband and child have been taken as given by nature. Instead, the woman is forced to live on the man's wage, and through

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<sup>39</sup> See Marx, *Capital*, vol. 1, chapter 15.

<sup>40</sup> For a discussion of this, see Hayles, *My Mother Was a Computer*, chapter 6.

this relationship capital exploits the work of two persons through a single wage. In recent decades, the work of this sphere has increasingly become commodified, as feminist struggles have included the refusal to do this work for free. Thus, for example, an activity such as cooking has become transformed, commodified into pre-packed frozen foods and appliances, as well as service work such as that in the fast-food industry. Jackson's Shelley imagines her work in {sewn} as an "an attempt to achieve by artificial means the unity of a life-form—a unity perhaps more rightfully given, not made; continuous, not interrupted." This unified life-form might represent a woman like the "authoress" as having a more "complete" life, one not cut off in the reproductive sphere. The unity could also refer to the disassembled worker of our other authoress's time, and "unity" the attempt to bring that worker back together through some larger project. This worker has been subdivided and stretched across the globe until his seams have come apart.

In {written} Shelley does not mention this "unity," but rather refers to what we might recognize as the distracted chattering worker from the earlier chapter on post-Fordism and cyberpunk literature. Here, Shelley writes and imagines a quilt as her gaze goes outward, distracted by the old women in town, quilting "night after night, looking dolefully out their windows from time to time toward the light in my own window." It may be a stretch to link the women gazing out of windows to the information workers laboring under Microsoft and gazing toward that Vista, but the link to productive work is figured more strongly in Shelley's vision of the quilting women's sewing "strokes go[ing] quicker than machinery." But here, instead of cool information workers, distracted at their

Windows, the connection is to the sweatshop laborers across the globe, an almost exclusively female workforce.

Another link has to do with the second key aspect of Hardt and Negri's theory of immaterial labor: feminization. This time, however, instead of linking to the female in the sphere of reproduction, we have feminization as an essential aspect of the capitalist division of labor. In *Gramophone, Film, Typewriter*, Friedrich Kittler begins his section on the typewriter by noting that the word "typewriter" once meant both a machine and a female typist.<sup>41</sup> The material metaphor<sup>42</sup> suggested by this traffic captures the logic of capitalist technology in a single image. The capitalist division of labor subdivides, and in the process "feminizes" a craft, while introducing machinery that makes the subdivision possible. When Kittler remarks that the typewriter inverts the gender of writing and consequently the "material basis of literature," he observes a process described by Marx in the first chapter of *The Communist Manifesto* more than 150 years earlier: "The less the skill and exertion of strength implied in manual labour, in other words, the more modern industry becomes developed, the more is the labour of men superseded by that of women. Differences of age and sex have no longer any distinctive social validity for the working class."

It may seem difficult, however, in the context of an argument that begins with the industrial worker, to understand the craft of the male clerks as skilled labor that women would have been unable to perform. Kittler's history is suggestive on this point, as we see that what is dissolved is not a muscular quality inherent to males, but a knowledge work dependent on education, as well as a strict division of communication channels,

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<sup>41</sup> Here the old joke: A bankrupt businessman writes to his wife, I've sold my desk and all my furniture and am writing this letter with my typewriter on my lap.

<sup>42</sup> On material metaphors, see Hayles, *Writing Machines*.

both of which barred females from writing machines. Before the typewriter, Kittler argues, all poets, secretaries, and typesetters were male, because poetry and commands went through the same channel. Women were the readers or consumers of writing, or the virgin white sheet of paper that inspired the male quill, and they remained an abstraction in the sense of a demographic group, an idealized audience. The typewriter changed all that; but Kittler's version of events is not just a techno-determinist championing of a single invention, nor is it simply media discourse theory. The typewriter appears as an important machine operating according to the logic of capital. "Industrialization," Kittler argues, "simultaneously nullified handwriting and handbased work;" and as a result, "all hands are up for grabs—as employable as employees" (*GFT* 186-87). Thus, the term "feminization" might be thought of as accidental in the sense that first we have the degradation of work and only later its pairing with the female gender, whose more decisive role is to stay in the reproductive sphere, providing "women's work" for free because it comes "natural" to them.<sup>43</sup> This much is clear from empirical observation. Between 1870 and 1930 the number of typists employed in the U.S. increased from 154 to 811,200, of which 96% were women (*GFT* 184). Today, word processing is a desexualized non-profession, a so-called portable skill required of any white-collar worker, simultaneously making him or her eminently replaceable but also flexible enough for work with any content.

The "hercut" images (as well as the story of the monster herself) show a body fragmented and recombined in different ways. For instance:

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<sup>43</sup> Indeed, an interesting reading of Kittler's 1800 and 1900 discourse networks could focus on the founding moments of the "mother's mouth" and the invention of the typewriter. In the first, in only the early stages of the Industrial Revolution, the female provides training for future clerks and authors through her natural duty as a mother. In the second, the female enters the work force to earn a wage she once split with the husband-worker she raised.



Figure 4-1. hercut

Similar to the parcelling of body parts and body fluids of the short stories in *The Melancholy of Anatomy*, then, we have an image of the fragmented body used for organizational thematics. In *Patchwork Girl*, one goes through the main image of the Patchwork Girl with a dotted line running across or through the female body. Next, the “hercut” images of the Girl display limbs and body parts mixed every which way. The {hercut 4} image, which presents the most disjointed depiction of her body, links to a graveyard headstone, capturing eight body parts (with the organs counting as one body part) and the phrase “may they rest in piece.” Instead of resting in peace, the pieces are re-assembled into a monster, the Patchwork Girl. What can we learn from the pun, from the idea of separated organs, body parts expected to rest in piece?

One clue could come from *Melancholy of Anatomy*. Here, Jackson uses biological components or aspects as story titles, which she organizes into four sections named after the four humors from ancient and medieval medicine. These stories could collectively represent a kind of subdivision of the human, altogether telling a parable

about the division of labor. The capitalist division of labor most famously subdivides first between conception and task, between mind and body, and then more by the muscle movements of workers, made into routines and subroutines, patterns, representing specialty processes themselves representing the granularity of an overall task. The division into body parts in *Melancholy* takes a more curious, less easily categorizable approach, and an approach that less obviously corresponds to the division of labor. While it seems perfectly logical to see “Nerve” or “Blood” as corresponding to the same sort of physical activity-related categories and in fact “Nerve” and “Blood” may in fact on the face of it stand for the mind and body dualism at the beginning of the capitalist division of labor.

Indeed, if blood represents meatspace in the cyberpunk sense of the term, the story’s opening perfectly characterizes the reduction in importance of Taylor’s man-beef in twenty-first century knowledge work. The story seems to be about menstrual flow, capturing the gendered division of labor in the global economy, the way man-beef may have been replaced by women producing sneakers and microchips. The microchip in fact is a perfect example here, as it is essentially a pattern conceptualized by male engineers, then miniaturized, where its representation is now reproduced on a scale that no longer requires male muscle power or male scientific knowhow. The story opens with a line that captures the logic of post-Fordist free agent labor: “it wasn’t steady work, no, no more than once a month, and then it was terrible hard work for a few days” (137). But the imagery reminds of industrial production—“I worked on the docks in between”—and the welfare state and associated fears about the end of work—“though I needn’t

have and some like me didn't, but just lazed around until the monthly came again" (137).

We might also divide up the stories (overlooking for now that Jackson has in fact herself already grouped the stories into four categories) by female and male associations. "Egg" and "Foetus" and "Dildo" go to one side, "Sperm" to the other. We could then make some connection to orders of reproduction of labor and production proper, in addition to my earlier division into knowledge worker and (wo)man-beef. But then what other titles would go over to the male side of the ledger? "Cancer" and "Nerve" seem gender-neutral titles. "Heart," on the other hand, seems more likely associated with the affective labor more commonly done by women in service industries, and anyway is placed outside of the other twelve stories, as if it offers a critical vantage point looking upon the other stories, as might an author's preface or Jackson's WYSIWYG opening in *Patchwork Girl*. "Milk" and "Fat" are also ambiguous stories, though again perhaps more likely associated with the role of reproduction and thus the female.

What to do, then, with this lopsided categorization? Perhaps it represents the disappearance or invisibility of the male from the anatomy, from the corporeal body. All of those technotexts and business books by male authors that have announced the era of the knowledge economy, the post-capitalist society, and so forth, find their counterweight in the body parts of *Melancholy*. In this case, our mind/body split is supported by the absence of the male body from the story titles, its only appearance in the titles "Sperm" and "Dildo," the latter perhaps representing the cyborg image of the

male techno-worker of cyberpunk literature, while at the same time signaling an erasure of male agency.

If this body re-assembled is monstrous—is indeed some kind of threatening figure—then the rest-in-piece is a kind of docile, divided, fragmented body, re-assembled in this particular case through an act of writing/sewing. In the capitalist use of machinery, the division of labor subordinates the human to the machinery. The workers adapt to the tool, become linked to specific tasks. Once these tasks are automated, machines replace humans, who are now cast back into the labor pool. Workers thus become functions or pieces, fitted into hierarchies of production. The Patchwork Girl, in contrast, is compared to a swarm, a mob, a motley crew. She in fact takes body parts from woman, man, and animal (her intestines come from a cow named “Bossy”). Moreover, Jackson’s various explorations of the body emphasize its role in information production as simultaneously involved and repressed. In her reading of *Patchwork Girl*, Hayles describes this narrative focus as an interest in “digital media enact and express new kinds of subjectivity” (143). But what precisely are these new kinds of subjectivity? In *How We Became Posthuman*, her history of cybernetics, Hayles first attended to this dissolution of the corporeal body and the materiality of information through cybernetics and media technology. There she argues against “postmodern orthodoxy that the body is primarily, if not entirely, a linguistic and discursive construction [. . .] as a play of discourse systems” (192).<sup>44</sup> The bodily obsolescence described by Rabinbach results, in Hayles's history, not in the body's disappearance but

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<sup>44</sup> She cites Michel Foucault's *The Archaeology of Knowledge*, Jean Baudrillard's *The Ecstasy of Communication*, and Arthur and Marilouise Kroker's *Body Invaders: Panic Sex in America* as evidence.

in the emergence of a new subjectivity formed through a combination of information's immateriality and informatics' materiality.

### **Numerical Control**

This is a key concern in much of Hayles's criticism, as for instance in her reading of William Burroughs's *The Ticket that Exploded* (specifically the Reality Studio section). Hayles describes a feedback loop between incorporating practices, defined as actions repeated into our bodily memory, and metaphoric networks, which emerge when embodiment is encoded into language and then, in turn, influence the development of technologies that change our incorporating practices. Inspired by Burroughs, Hayles narrates a brief history of audio technology in order to demonstrate how this new subjectivity works. *The Ticket*, Hayles argues, shows discourse dematerializing the body and the body materializing discourse. By contextualizing it "in the high technology (for its time) of magnetic tape-recording," we can better see how dematerialization depends on processes of embodiment that are hidden by the "ideology" of the former (193-94). Embodiment gets encoded into language through metaphoric networks. When technical innovations cause changing experiences of embodiment, these "bubble up" into language. At the same time, discursive constructions effect embodiment, influence what technologies are developed, and help structure interfaces between technologies and bodies. This is one of Hayles's customary feedback loops: new technologies affect bodily experience, which then affects language, getting encoded there through metaphors. Out of these metaphoric networks, we get discursive constructions that affect what technologies are developed and how they are put into play.

Hayles claims that by "concentrating on a period when a new technology comes into being, one should be able to triangulate between incorporation, inscription, and

technological materiality to arrive at a fuller description of these feedback loops than discursive analysis alone would yield” (207). In this particular reading, Burroughs’s use of audiotape as a theme leads to this observation:

We read in the body. This subvocalization made literary language possible. Consequences include the following: bodily enactment is central to reading; reading is akin to interior monologue with narrative supplied; production of subvocalized sound may be as important to subjectivity as it is to literary language. (207)

So, we read in the body; but what if the audiotape history isn’t the most appropriate context here? What if we emphasize another keyword in the section in *The Ticket on the Reality Studio*: “*Work* for the reality studio or else. Or else you will find out how it feels to be outside the film” (Hayles 218 quoting Burroughs, my emphasis). The magnetic tape Hayles describes in her audiotape history has a parallel history she does not explore, but which David Noble details in his *Forces of Production*: numerical control and record playback technology, or N/C and R/P. Hayles says we read in the body, but she doesn’t outline an entire discourse network like Kittler’s 1800 confluence of different practices including the oral reading instruction given to children by their mothers. Moreover, the key moment of recorded sound has already passed with the gramophone in Kittler’s discourse network of 1900. Audiotape seems like a commercial byproduct of a more radical technology developed with more insidious goals. When Burroughs writes, “work for the reality studio or else,” we might read this as a salvo to organized labor. For this same reason, Norbert Wiener wrote to UAW leader Walter Reuther on the topic of cybernetics and control technologies to advise him to “show a sufficient interest in the very pressing menace of the large-scale replacement of labor by machine.” According to Wiener, the unemployment resulting from these technologies would be “disastrous” (qtd. in Noble 75-6).

If we combine Hayles's emphasis on the materiality of technology with Noble's account, we get a focus similar to Rabinbach's, one that emphasizes the technologies situated within capitalist discourse. If technology is not neutral, then scientific discourses are already geared toward application for capitalist production, for work that generates capital, whether it comes packaged in a job or in a particular material activity. Numerical control technology comes about to solve the problem of *programmable* automation. The development of industrial control goes back to a number of wartime advances, including research into servomechanisms and the early computer research that comes out of ballistics calculation. By the 1950s, the development of stored programs greatly reduced the skill and time required for programming. Prior to von Neumann's contribution,

Programming in machine language entailed a familiarity not only with the substance of the problems to be solved but also with the construction of the computer itself and involved the careful elaboration of discrete algorithmic instructions for every aspect of the overall operation. (Noble 51)

The ability to store programs, however, meant "pre-wiring some standard logical operations into the computer's memory," thus freeing the user from some of the labor involved in writing instructions for the programming of a task (51). A user with a task to program could now have the computer retrieve the proper programs from memory, thus writing those instructions automatically. A logical conclusion from this point is that the universal machine could be made, in a given condition of use, into a "special-purpose machine" (51). Moreover, as the concept of stored programs led to the development of computer languages that would be translated into machine language by an assembler (a layer of programming between the user and machine language), users could program "without ever having to know anything about machine language or the workings of the machine itself" (51).

This same development occurred with the emergence of numerical control in manufacturing. Automation through the use of stored programs turned labor processes that required skilled workers working with general purpose machines into labor processes that required nonunion supervisory workers attending to special purpose machines. In the course of this development, the number of production workers declined from 78% to 72% of the total employment in the U.S. between 1947 and 1964 (Noble 63-64). In order to make full use of the control technologies instituted during this time, the key problem to solve was that of changing temporarily a universal machine into a special purpose machine. Such a transformation would enable the simplification of work, concentration of management control, and intensification of the technical division of labor. This problem was solved using the same logic as described above: by creating “programs,” or instruction sets, “stored on a permanent medium and used to control the machine” (81).

Numerical control thus emerges as an essential part of the history of the computer, providing in fact a much-needed application necessary to justify the funding of MIT’s Project Whirlwind. The initial phase of numerical control (N/C), referred to as record playback (R/P), worked by recording a worker’s movements onto magnetic or punched tape. The stored motional information could then be played back in order to automatically reproduce the movements required to use the machine tool to create the required part. The machinist produced the first part manually, and the resultant taped program would be used to create subsequent parts. This specific form of the stored program application to machinist labor changed further when the machinist was removed completely from the loop in favor of a “parts programmer.” This is where the

*numerical* comes in: Whereas previously the templates, or programs, were created by recording the machinist's motions for "playback" in the creation of further parts, once N/C takes hold the recording is no longer actually a recording. The machinist's motions are now described mathematically in advance and recorded as numerical information. As Noble describes it, R/P views the machinist as an "opportunity" to incorporate human judgment and skill. N/C, on the other hand, sees the machinist as an opportunity for human error (150).

Noble argues persuasively that this subsequent advance on the record playback technique is based on the desire to take labor out of the loop, as economic studies proved N/C to be far more costly than other existing methods because of the high cost of programming (135-39).<sup>45</sup> As Burroughs writes, "there is of course the initial problem: programming tape recorders is an expensive deal any way you wire it" (*TTE* 163). Whereas the former method still relies on the skills of a machinist on the shop floor, the revised method requires only supervisory labor. Noble thus argues, "N/C was the perfect solution for one particular problem in metalworking, not so much because it worked there but because it constituted the first step toward the fully computer-integrated automatic factory" (85).

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<sup>45</sup> Noble's emphasis on fragmentation and deskilling is not the only interpretation of the technology. For instance, in his study of the evolution of the factory into the "cybernated" factory, Bryn Jones argues that the problem with this emphasis is that it mistakes theory for reality. I do not find Jones's argument persuasive, however, because he does not appear to recognize the larger point. Attempting to counter the theoretical emphasis of "Braverman and some of his followers" (Jones is familiar with Noble's text and refers to it often) with what goes on empirically or "in practice," Jones's examples of what a shopfloor laborer might do that would constitute skilled labor include are all clearly just supervisory roles in the sense Marx describes (see my second chapter). This is clear from the following description, in which Jones describes instances where the skill of the operator would come into play, and all such instances are mistakes or miscommunications at the programmer level: "By missing out a single character or command, programmers might unwittingly send the cutting tools to the wrong position during the metal-cutting operations. Programmers might forget or never have been told, that a particular machine ran at slightly different speeds to others of its type. They might program for cutting one type of metal when, in fact, another was being used" (98).

If we take a broader view of Hayles's proposal to situate Burroughs's writing within the "high technology (for its time) of magnetic tape-recording"—and we remember that the tape technology as it is represented in Burroughs's writing is a matter of *consumer* products (which tend to follow as spin-offs or as otherwise altered by the strategic needs of the military or of labor control)—then Hayles's demonstration of how to foreground embodiment can now be taken to refer to Rabinbach's problem. Furthermore, we can situate this problem within the context of an end of work. In one section of *The Ticket*, Burroughs writes:

Martin's film worked for a long time. Used to be most everybody had a part in the film and you can still find remote areas where a whole tribe or village is on set. Nice to see but it won't do you much good. Even as late as the 1920's everybody had a good chance to get in the film. (151)

We might say, in Burroughs's language, the work con of the Keynesian welfare state has been exposed. The film analogy with the image of the set reminds the reader that the welfare state was never really a solution to the antagonism inherent in the capitalist system and the wage relation. The passage continues with Martin speaking:

Well [Martin] was dipping into the till. Just looks at me and says "Account sheets are empty many years." The film stock issued now isn't worth the celluloid its [*sic*] printed on. There is nothing to back it up. The film bank is empty. To conceal the bankruptcy of the reality studio it is essential that no one should be in position to set up another reality set. The reality film has now become an instrument and weapon of monopoly. . . . Work for the reality studio or else. Or else you will find out how it feels to be *outside the film*. I mean literally without film left to get yourself from here to the corner. . . . Every object raw and hideous sharp edges that tear the uncovered flesh. (*TTE* 151)

Burroughs's play on the multiple meanings of the word "stock" suggests money in the pre-Bretton Woods phase, before the U.S. dollar went off the gold standard and lost the appearance of being backed by something tangible, material. Pushing the analogy further, past money itself, we might substitute work, as in work or surplus value isn't

worth its stock. Even the farce is an illusion. Labor's choice, however, will be to continue working for the studio, working with management in the introduction of new automation technology into the workplace in an effort to minimize the loss of jobs and of skills (as it did), work which required going along with the transfer of skill to taped programs, or to be left on the outside. This means perpetuating an illusion that has been emptied out by N/C technology.

In his review of Rabinbach's study, Mark Seltzer questions the understanding of the shift to post-industrialism or post-Fordism as a progressive obsolescence of the body. As Seltzer explains it, the thermodynamic conception of work, described by Rabinbach as what universalized work, rewrote production as conversion:

The rewriting of production as conversion, the rewriting of creation as processing, fundamentally shifts what we mean by 'real work.' Most basically, the rewriting of production as conversion fundamentally redefines relations between nature and work and, in turn, relations between production and representation; or, more exactly, between production and information.

The implication, most aptly demonstrated by Taylor's "incorporation of the representation of the work process as the work process itself," is that the obsolescence of the body was already ongoing during this time (a moment sometimes looked back on nostalgically as a period when jobs were more assured and commodities more tangible).<sup>46</sup> Seltzer's description of the process looks similar to Hayles's description in *How We Became Posthuman* of the informatic replacing of thing with pattern. The key thing here is not simply to re-periodize Rabinbach's history – to change the date of the body's obsolescence – but rather to observe a kind of collapsing of distinctions between

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<sup>46</sup> The thermodynamic conception of work further suggests an end of work in its second law, which states that the amount of energy in the universe available for "work" runs down irreversibly, although the total amount of energy is infinite or nearly infinite. On this note, see George Caffentzis, "The Work/Energy Apocalypse."

material industrial production and immaterial post-industrial information processing. Writing and information processing, or the intermingling of bodies and writing machines are material affairs; and some quotient or aspect of material physical work has always been immaterial. Instead of a progressive dematerialization of work, perhaps we have a progressive coupling of bodies and machines. Perhaps this is why the outside of the Burroughs tape-loop is all raw objects and sharp edges that tear flesh: To be outside the film is to be uncoupled violently from the cybernetic circuits connecting humans and machines.

### **Writing Machines and Technotexts**

Now that I have established a connection between Hayles's media studies and this history of the body's dissolution into the circuits of capital and its eugenics of production, I turn to her more recent *Writing Machines* for a version of the new body of immaterial labor. In *Writing Machines*, Hayles once again contrasts the immaterial body with what she considers an overlooked material embodiment. She argues that literary criticism tends to treat literature as immaterial verbal constructions, and thus ignores the materiality of literary artifacts. Electronic textuality promises to change this situation, she claims, by forcing us to consider materiality, as now all texts increasingly will be reproduced as electronic documents.<sup>47</sup> Since we have already admitted images (or the textimage), Hayles reasons, why not consider other semiotic components? She lists sound, animation, motion, video, software functionality, and kinesthetic involvement all as possibilities for interpretation.

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<sup>47</sup> This may limit her argument historically, as it posits only one situation and one material transformation. This seems to be a techno-determinist argument to me, attributing a new critical focus to a change in the media machine, as well as attributing what could simply be a choice of materiality for critical focus (for instance, the material world represented by those verbal constructions) as a blind spot caused by a failure to appreciate the technological apparatus.

Hayles introduces new terms for theoretical practice, beginning with “material metaphor,” to describe a metaphor that traffics between words and physical artifacts. When the traditional material apparatus for text (i.e., the book) changes, so too does the act of reading and the metaphoric network between “word” and “world.” Hayles then adds a second key term, “inscription technologies,” to describe those technologies that initiate material changes that can be read as marks. This leads to a third, and I think her most important, term, the neologism “technotexts,” which names those literary works that pay attention to the inscription technologies that produce them. We then learn that the book’s title—*Writing Machines*—has a dual meaning based on each of these latter two terms. First, it names inscription technologies. Second, it’s what technotexts do: They write machines. By “writing machines,” Hayles means that technotexts write *about* machines, with the twist that they write about the machinery that produces such a text as itself. Yet, phrasing this “writing machines” instead of “writing about machines” signals the truly most important task Hayles creates for herself in this book: She creates an alternative or a complement not only to first-generation hypertext criticism’s emphasis on the link, but also and primarily Espen Aarseth’s *Cybertext*. *Cybertext* treats texts as machines, but, in Hayles’s view, avoids important questions of materiality. *Writing Machines* draws attention to the materiality of such machines, emphasizing their production. In this revised approach, Hayles appears to make possible those recognitions of concrete events or situations lost in the ideology of the digital text, and especially lost in Aarseth’s approach that black boxes materiality, including that of the text’s production.<sup>48</sup> Whereas *Cybertext* emphasizes texts that are ergodic—meaning that they require nontrivial effort in order for the reader to make her way through them—

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<sup>48</sup> See Jameson, “The Ideology of the Text.”

Hayles's "technotexts" emphasizes texts that pay attention to the nontrivial effort of machinery to produce the texts (and perhaps readers, as every commodity object creates its subject).

However, Hayles often seems to waver between treating technotexts as objects or technotextuality as an approach, on the one hand, emphasizing MSA's focus on the fact of embodiment or materiality, and on the other, defining materiality as emerging only through interplay between physical properties and artistic strategies. While taken literally these two suggestions are consistent, I would argue, in that the emphasis on "artistic strategies" as actuating material possibilities<sup>49</sup> suggests a smuggling in of a view of technotexts as objects, not just technotext as a perspective (as cybertext is for Aarseth).

The case of *Patchwork Girl*, which Hayles describes as a revolutionary reading experience, suggests this much. In one of the autobiographical chapters of *Writing Machines*, "Entering the Electronic Environment," Hayles admits that in her early encounters with electronic texts she read according to criteria formed in her experiences with print literature, and that only years later did she realize operational differences between the different media. *Patchwork Girl* "heralded the transition to second-generation electronic literature" (37). Navigation proceeded in *Patchwork Girl* between images and words, and text and computer. This first pairing is clear enough, but the second pairing less so. If navigation between text and computer exists, and we take

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<sup>49</sup> Hayles: "Here I want to clarify what I mean by materiality. The physical attributes constituting any artifact are potentially infinite; in a digital computer, for example, they include the polymers used to fabricate the case, the rare earth elements used to make the phosphors in the CRT screen, the palladium used for the power cord prongs, and so forth. From this infinite array *a technotext will select a few to foreground and work into its thematic concerns. Materiality thus merges from interactions between physical properties and a work's artistic strategies*" (32-33).

“computer” to mean some level underneath the interface, then the reader/user is not the one doing the navigating.<sup>50</sup> It is also unclear why this navigation occurs in second-generation hypertexts, but not in those of the first. Jackson's second-generation hypertext, for instance, differs only slightly from Michael Joyce's first-generation *Afternoon*. Each was composed using Storyspace software; each requires readers to make active choices so as to move between lexia; and text dominates both texts. Yet, Jackson's hypertext helped Hayles realize that a shift in the material substrate changed “everything” about a literary work. From this retrospective position, Hayles adds that part of the problem existed with the texts themselves. Thus we see the flickering between technotext as an approach to texts and technotext as a type of text. If it was difficult for her to change her method of reading to better read electronic literature, this mistake was in part produced by the quotient of text in the work itself, which did not require a fundamentally different type of reading.

What, then, creates this different kind of text, and this different experience of reading? Jackson's attention to technotextual concerns comes forth using a technotextual approach. Jackson's writing exemplifies technotextual literature through both its thematic attention to inscription technologies and the formal innovation of second-generation hypertext strategies in the case of *Patchwork Girl*. Moreover, Jackson considers the role of the material body both in terms of content and form. What makes Jackson's writing especially productive as a technotext, however, is the way it draws attention to the means of production that produce it, not merely as the post-structuralist “catch-all” (Kittler's term) of inscription technologies but as the

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<sup>50</sup> By this distinction, I mean something like Aarseth's definitions of scriptons as the strings of symbols that readers see and textons as the program.

material/immaterial, work/representation, machine/human arrangement that defines the dominant figure of work in our so-called post-industrial time. Yet, there is no difference between Hayles's technotextual approach and other hermeneutics that emphasize technology as a privileged figure or allegory for reading the system of global capitalism. Indeed what may in fact differentiate Hayles's approach from others is precisely the way she circumscribes her approach to this recognition rather than going all the way to a reading of the specific connection.

If we take writing in Jackson's text as, at least in part, a metaphor for knowledge work or information work on the whole, then Jackson's writing about this kind of writing provides a theory about capitalist work, which the *Patchwork Girl* undermines. It's a theory about the place of the laboring body in an economic regime that actively works to dissolve that body. The swarming, fragmented and recombined body—what we might call a hypertextual laborer—is thus not necessarily a revolutionary figure. The body is fragmented by this technical division of labor and scientific management, and then assembled, made into a hierarchy of job functions, parts of an assembly line process, plots on an organizational chart. Bodies are thus combined into a hierarchy of speeds and networked, while assigned to discrete spaces. All of this can be seen in Jackson's writing on writing in *Patchwork Girl*. Jackson's use of the Storyspace system and her development of a thematics about materiality and immateriality show that the remediated worker in the post-Fordist environment is a body re-contextualized and intermingled with other bodies and machines, thus inseparable—even undesirous—of being freed in an integral way from that environment.

## Remediation

I propose a theory of the remediation of labor to understand this worker. The remediated laborer is based on Bolter and Grusin's concept, which I think gives us a way to think through the problem detailed by Rabinbach, and to discover the role of the body in the end of work. As should be clear from Seltzer's reading of Rabinbach, as well as from the discussion of Burroughs advanced above, a more nuanced reading of Rabinbach's shift from the era of the human motor to the era of work's obsolescence would consider the transformation of the body not as a move from material to dematerialized and thus obsolescence. Rather, the change is gradual, merging representations of the work process with the work process itself, to the point that the representations take on primary importance. In our post-Fordist era, these representations—and their specific logic—are not only primary, but they have become progressively embodied in machines, thanks largely to Turing's invention of a universal machine that can simulate all others.

Bolter and Grusin describe their concept of remediation as having a "double logic" (5). Hypermediacy refers to the multiplying of media; immediacy refers to the erasing of media. The former describes opaque media in which content is communicated through a mixture of media styles, or even is self-consciously critiqued or repurposed, as in a windowed interface or a cable news program with split screens and a crawl. The latter characterizes media that strive for transparency or immediacy, in which viewers can be immersed to the point of not noticing the media, as in a linear perspective painting, or virtual reality, the latter a medium "whose purpose is to disappear" (21). Both logics seek access to the "real," but in terms of a viewer's experience, not in terms of

resemblance or metaphysics. One does it by multiplying experiences, the other by denying the very fact of mediation.

The concept of remediation complicates our notions of medium and content, as is clear from Bolter and Grusin's somewhat circular definition of a medium as “that which remediates” (65). A medium “is that which appropriates the techniques, forms, and social significance of other media and attempts to rival or refashion them in the name of the real” (65). This circularity or lack of a stable referent does not cause a problem throughout most of the book, because of the authors' focus on the media ecologies of the twentieth century. Bolter and Grusin argue that today “no medium, it seems, can now function independently” (55). Their definition becomes less tenable—but more interesting—in the final chapters of *Remediation*, when they attempt to theorize various types of remediation of the self, and inevitably focus on the body. At one point, they call the body a medium. What they mean by this concept is elusive, however, as it is reliant on examples from feminist theory and performance art, with very little explicit definition.

Recent feminist theory has insisted not only on the embodiment or materiality of the self but also on the increasingly complicated relationship between the body and technology in contemporary culture. Donna Haraway's influential cyborg is the body as remediated by various contemporary technologies of representation. Following Haraway, many others have shown how the body itself functions as a medium. (237)

If a medium is “that which remediates” and the body “functions as a medium” what precisely is it that the body remediates? According to their definition of remediation's double logic, the body must thus participate in both the multiplication and erasure of media in order to gain some access to the real (I take this to refer to content).

Making the problem especially confusing is that their examples tend to refer to the body as an object of mediation, not as an active remediator itself, which is how they

define a medium. For instance, the longest treatment they give to one of their sources goes to Anne Balsamo's *Technologies of the Gendered Body: Reading Cyborg Women*. However, her discussion of cosmetic surgery shows how the body is remediated, not how the body acts as mediator:

Balsamo shows how surgeons visualize the female body as an object for cosmetic reconstruction. Traditionally they used sketches to show the patient how treatment would improve her appearance; now they are relying on video and even computer graphics. Balsamo contends that "new visualization technologies transform the material body into a visual medium. In the process the body is fractured and fragmented so that isolated parts can be examined visually. . . . At the same time, the material body comes to embody the characteristics of technological images" (237-38).

The body is thus hypermediated by "new visualization technologies" and made transparent through reproduction that constructs a new cultural ideal. Here, though, the body is something external, a content or real being refashioned or remediated. If the body is a medium, one would expect to see the body also remediate other media.

Thacker clarifies this problem somewhat in *Biomedica*, a study that takes up precisely this question of how the body can be seen as, or in practice acts as, a medium. He appears to make the body itself an ordinary medium, but one that remediates itself. Thacker argues that in Bolter and Grusin, technology is something external, "ontologically distinct" from the body—which is what makes it so hard to see how the body as a medium by their own definition—and suggests the body itself is already a medium organizing or enframing biological components. He then considers biotechnology, looking at "the ways that the material components and biological organization of the body can in effect be reengineered, or redesigned" (10). He also looks at ways in which material properties of the body are geared toward "extra-organismic ends" (10). Attempting a definition of the body as a remediation through

Bolter and Grusin's definition, Thacker writes, "the body is a remediation, a process in which a functioning, biological materiality self-manifests, caught in the midst of the poles of immediacy and hypermediacy, the 'body itself' and the body enframed by sets of discourses (social, political, scientific)" (10-11).

Thacker is primarily interested in biomedica "as the technical recontextualization of biological components and processes" (11). His elucidation of Bolter and Grusin's concept has potential, however, for use in the understanding of labor, especially at a moment considered to be a transition marked by our understanding of the body (as in Rabinbach's argument):

In the broad sense, "biomedica" would simply designate any mediation of the body. This may be technological (as in visual representations of bodies in photography, film, or streaming video), but "mediation" can also be social, cultural, political, or economic. And indeed, we may ask if the "thing" being mediated is not itself already a mediation, as in, for instance, the ways in which a molecular-genetic knowledge of the body affects how we understand our own bodies as parts of the processes of embodied subjectivity. The extreme version of this is that dominant scientific paradigms (such as the popular notion of an individual being "written" in his or her genetic code) actually condition subject formation. In such a case, the individual subject, in our particular cultural historical moment, would arise concurrently with a biologism informed by genetic science. The body of the subject is therefore always already scripted in part by scientific-medical modes of knowledge production. . . . The common frustration with such interpretations is that the object of inquiry rapidly fades away beneath layers of mediation, sometimes taking one to the extreme position of "the body as a sign." But this broad definition of "biomedica" not only infinitely defers any referent we might refer to contingently as "a body," but it also can deny modes of tropic materialization or "corporealization" their real effects in different contexts (medical, social, political). A "cultural constructionism" of the body is not identical to disembodiment or dematerialization; a range of medical, social, technical, and political forces may heterogeneously combine to articulate [the body]" (11).

For my purposes, then, the question about this "thing" being mediated at the end of work is a question about the body mediated as labor, or, perhaps more precisely, labor power mediated as the body by the notion of work. This is how I read Rabinbach's

assertion that work's disappearance is linked to the loss of a representation system that made living labor, and even simply human activity, appear as industrial work.

The body in this case was hypermediated by the technologies, sets of knowledge described by Rabinbach; and this hypermediated body was called the "human motor." Since remediation requires two logics, it still remains to describe the immediacy of the human motor, what Rabinbach characterizes as the phenomenological experience of the embodiment of this body. Moreover and perhaps most crucially, as Thacker's theorization shows, we only refer to this as a "body" (let alone a worker or laborer or wage-earner) contingently. We simply do not have a loss of the body or a dematerialization of work (though we may have an end of work), but rather a remediation of the body, as the result of both materializing and dematerializing forces.

Thacker's analysis of biotechnology is thus suggestive. What if that which is commonly read as the obsolescence of the body (and thus the end of work or the work-centered society) is actually a more profoundly material investment in the body? The laboring body now decomposed into components, re-organized extra-organismically into what the autonomists referred to as the social factory. A question raised by Rabinbach's study still remains: if work has lost its meaning, why was meaning associated with the body? If it was just a decline in manufacturing, presumably we could still be productivist-oriented. In addition, fatigue and energy can be associated with knowledge work, image creation, and so forth. The laboring body or worker is not a natural thing; it's a historical entity. In the sense in which Bolter and Grusin use the term, the body remediated by the human motor metaphor is at once made immediate by the concept of labor power, or perhaps the ideology of capital, and made multimediate (hypermediate) by the scientific

discourses of thermodynamics, scientific management, and so forth. The body remediated was seen as a political instrument “whose energies could be subjected to scientifically designed systems of organization” (Rabinbach 2). Rabinbach’s language is instructive: “the laboring body was thus interpreted as the site of conversion, or exchange, between nature and society—the medium through which the forces of nature are transformed into the forces that propel society” (2-3). Even if the era of the human motor has passed, the body must remain this medium, because capital requires human or living labor to create value. If humans, not machines, create value, then humans must be remediated again if the laboring body is now on the periphery.

In other words, Rabinbach’s human motor can meet its demise, work and the body can be removed to the periphery at the end of the labor-based society, but capitalism is alive and well and people still have to go to work. Indeed, work seems to have increased since the automation debates of the mid-twentieth century. In the U.S. where automation is perhaps the most advanced, American workers work more hours per year than all workers around the globe, except for East Asia (Henwood 40). This is the very same space where production, in the sense of physical work, has waned. Even as the worker’s understanding of her condition qua worker has been decentered, work in the capitalist sense remains by definition worker-centered.

CHAPTER 5  
XL

I'm glad that I wrote this way when I was younger, as the odds of my getting back around to that state of delight and intellectual conviction seem to diminish as age qualifies all my insights. I could not write like this now if I tried. But I do still like some of these sentences. "The impossibility of knowing where knowledge leaves off and involvement begins": that strikes me as a good place to begin learning how to write a novel, and an adequate first line for one possible biography of my times.

—Richard Powers

**Introduction: A Book about Business**

In an interview published in *The Review of Contemporary Fiction* in 1998, the same year as his sixth novel, *Gain*, Richard Powers describes *Galatea 2.2* (1995) as marking a break for him, "a kind of closing chapter on my first five books" ("An Interview"). The novels that come before constitute an "apology for fiction in a post-fictional age." We could frame this statement in terms of the media ecology of the late twentieth century, in which the novel competes not only with film and the gramophone's various descendants, but with twenty-four hour news channels made up of streaming text and sound bites upon sound bites, the Internet, video art, and hypertext fiction and e-literature. In this case, one could pay close attention to the competing media in Powers's first four novels, like that paid to photography in *Three Farmers* and that novel's use of Walter Benjamin's seminal writings, or the Walt Disney simulation in *Prisoner's Dilemma*. But after finishing his fifth novel, Powers claims he "spent some time wondering" what exactly made Helen, the reading or literary theory machine, give up or stop working at the end of *Galatea 2.2*. His conclusion says nothing about this media ecology, let alone apologizing in advance for fiction's gift of Harry Potter to this

post-fictional age, which would be shipped by amazon.com to a million customers in a single day in 2003:

I decided that the answer was the rhino at that table that no polite storyteller talks about, the one that none of my other books has yet addressed. I mean the thing that pays the bills, that manufactures all the books, that arranges the shape of our lives, that dictates our well-being, and that enforces the system of prices that our thoughts come to accept. So I figured I had to write at least one long book about business. (“An Interview”)

The result, as mentioned above, is *Gain* (1998), which tells the story of a fictional multinational corporation who<sup>51</sup> grows up in a town on the Midwestern plains; intertwined with that narrative is the story of a woman in the same town who develops cancer, almost certainly caused by the environmental effects of that corporation’s growth.

Powers’s statement about *Galatea 2.2*’s break now looks even more curious, since it is clear that if what lies on the other side is the work of acknowledging “the rhino at that table,” then *Gain* scarcely constitutes a break at all. Business is in fact very much a part of his first four novels, if we can take business to mean “capitalism.” While it is true that *Gain*’s history of the corporation explores business as a theme in greater detail than in Powers’s other fictions, the result is less a post-break innovation for Powers than a filling in of the back story to fictional (and less fictional) worlds he has already invented. Indeed, Powers wrote these first five novels during a period that saw the emergence of knowledge work as a recognizable dominant form of work in the U.S., and the emergence of what Michael Hardt and Antonio Negri have named immaterial, or biopolitical labor—labor that works with communication, information, and affect. When Powers the author gives up pursuit of his Ph.D. and goes off to become a technical

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<sup>51</sup> Though “who” may not be grammatically correct, it is the legally correct word choice here.

writer and computer programmer, a major transformation in the status of knowledge work is already underway. As a response to the struggles of labor, downsizing takes off in the U.S., which means huge investments in IT (information technologies) corresponding with huge personnel layoffs (Liu 35-36). These investments were not immediately profitable for their investing companies, but had the important effect of curbing struggles against work. By the mid-1990s, the U.S. economy is in the midst of a so-called “jobless recovery,” in part aided by corporations’ newfound ability to turn IT into profits. Just one year after the publication of *Galatea 2.2*, the terms “new economy” and “globalization” shoot into circulation. Thus, just as Gaddis writes *J R* over a period of time in which major transformations in capitalism influence the form of his novel in ways the content cannot register, Powers writes his first five novels during a period of transformation that threatens to separate form from content in his writing. The extent to which this transformation goes unobserved by Powers is evident from the quote above, as well as in the fact of *Gain*’s writing. If anything, the story of Clare, Inc. seems quaint compared to *Galatea 2.2*’s year in the life of the Center’s knowledge workers.

### **Sighing Powers**

*Galatea 2.2* begins with a sigh. After he “lost” his thirty-fifth year, Powers, the novel’s semi-autobiographical narrator and central character, returns to U., his old college “haunt.” In U., he met C., his lover most of the years since his departure from U. But he lost C in that thirty-fifth year, gaining in return a decade of letters mailed to him “fourth class” (31). In U., he met Professor Taylor, his inspiration for giving up physics to become a poet. But he lost Taylor, not in that thirty-fifth year, but twelve years after that “life-changing freshman seminar” (4). The new job at the U. is a “plum”: a fellowship at a recently added block-long research complex, devoted to scientific advancement, which

Powers simply calls the “Center.” Yet, Powers is only here because he has “nowhere else to go” (4). When C. banished him for good after he moved with her to her family's home country, so, he says, did the Netherlands. So he “slinked back” to U. “Nothing else remotely resembled home” (4).

Yet, personal loss weighs less on Powers than intellectual discontent. At the Center, he is merely an eavesdropping “token humanist,” a public relations “liaison with the outside community” (5). Powers gets no satisfaction from the completion of his fourth and most recent novel, *Operation Wandering Soul*, and has “no desire to write about science,” the subject of his third novel, *Gold Bug Variations*, the latter work which “earned” him his place at the Center (5). Instead, the depressed author plans to milk the final edits on his fourth novel as long as possible, because his next project eludes him. Though the idea for another novel has usually come to Powers by this point, “this time felt different” (10). Amidst all of the Center’s scientific knowledge work, Powers feels dissatisfied with what counts as knowledge in his field. When he says, “I had no desire to write about science,” it is not science that is dissatisfying, but “writing about.” Work at the Center on complex systems, artificial intelligence, cognitive science, and neurochemistry, fascinates him. Here, “and two dozen similar places abroad,” is the work that will “decide whether the species would earn its last-minute reprieve or blow the trust fund the way it intended” (6). Yet, Powers is only a “fly on the wall.” How can a novelist who gave up physics for an English degree keep pace in this “footrace”?

So Powers pedals a bike or, worse, walks between empty apartment and empty Center. When not wandering around the World Wide Web, he lurks about the Center late at night, catching a glimpse of the technological sublime:

That alone was worth coming in for: fifty million dollars of real estate filled with several hundred million in instruments, boxes that glowed with subdued purpose, abandoned like an electronic Rapture. No one could have a more profound sense of history than a night custodian of such a building.

Night brought open-endedness to the place. Through the machine on my desk, I could disappear down the coaxial rabbit hole to any port of call. I had a phone I could dial out on but which never rang. I had a white board and bright pastel markers that wiped off without a trace. I amused myself by writing out, in different colors, as many first lines of books as I could remember. Now and then I cheated, verifying them on the web.

These nights were dead with exhilaration. Like battening down in the face of a major maritime storm. All I could do was stock the mental candles and wait. (10-11)

Powers's reverence for such a scene differs vastly from the feeling Oedipa Maas has as she wanders lost in the similarly large and technologically advanced Yoyodyne, a semi-autobiographical site for another famous novelist, Thomas Pynchon:

Somehow Oedipa got lost. One minute she was gazing at a mockup of a space capsule, safely surrounded by old, somnolent men; the next, alone in a great, fluorescent murmur of office activity. As far as she could see in any direction it was white or pastel: men's shirts, papers, drawing boards. All she could think of was to put her shades on for all this light, and wait for somebody to rescue her. But nobody noticed. She began to wander aisles among light blue desks, turning a corner now and then. Heads came up at the sound of her heels, engineers stared until she'd passed, but nobody spoke to her. Five or ten minutes went by this way, panic growing inside her head . . . (66)

Indeed, as my comparison of these passages is meant to show, the space of the Center in *Galatea 2.2* evokes all of the problems of representation in the age of what Fredric Jameson has famously called the technological, or postmodern, sublime. In the narrator's comfort in this landscape, Powers registers our present familiarity with this space—or at least our lack of dread inside it—that once could be narrated convincingly to show such anxiety.

Yet, this description I don't think holds up across all present-day texts. Both *The Matrix* and *Office Space*, for instance, use the office setting as the space for tension-filled chase scenes that are remarkably alike, though the space is not given as the cause for the anxiety. Both scenes appear near the beginning of the film, and put a software writer in a landscape of cubicles from which he needs to escape immediately if he is to evade the oncoming menace. In the science fiction film, it's cops. In the "real-life" film, it's the boss. It is worth noting, however, that of the two films, only one makes post-Fordism's "glowing boxes" central to the scene, and it's not the one about a giant computer network of networks that has taken over the earth and enslaved humans in a virtual existence inside a computer simulation. The implication may be that the science fiction genre, thanks to cyberpunk, has already coded this space effectively and it need do nothing but appear as backdrop to evoke all the meaning necessary for the audience to experience its fear. Such coding, however, probably more likely comes from techno-thrillers of the 1970s, such as *The Parallax View*. *Office Space* humorously applies this kind of high-tech paranoia to the more mundane—and therefore more ominous—activity of shutting down a computer before the boss shows up and assigns weekend work. All of this is to say that if Powers doesn't directly write the same kind of anxiety and paranoia into the late night scene at the Center, the scene still carries the weight of that meaning due to what it signifies compared to other texts in related genres. The Center's computer network still distortedly figures, as in Jameson's representation problem, "the whole world system of a present-day multinational capitalism" (37).

One such itinerant evening, Powers overhears Mozart's "clarinet concerto, middle movement" coming from the office of Phillip Lentz, the Center's expert on neural networks.

In the Center, where no birds sang, this sound, slowed to a near stop, resigned all hope of ever saying just what its resignation carried. . . .

The endless phrase spoke of how you reach an age when anything you might answer would not be worth asking. (11-12)

What most drives the sighing Powers's haunted wanderings about the Center, his distracted energy, is disappointment in his field, its epistemology, its discourse system. Depressed by contemporary literary theory, the publishing and marketing industry, and his own recent novel, Powers's semi-autobiographical character of the same name must re-create Faust's experiment—that is, he has to figure out, in the words of Friedrich Kittler, how to "insert man into the empty slots of an obscure discourse network" (4). It thus seems strange that he places his wager on a literary theory machine.

The story of Faust also concerns the building of a literary theory machine, though not in the hardware sense of the term. "German poetry," Kittler notes in the opening chapter of *Discourse Networks 1800/1900*, "begins with a sigh."

Have, oh! studied philosophy,  
Jurisprudence and medicine, too,  
And, worst of all, theology  
With keen endeavor, through and through— (qtd. in Kittler 3)

The tragic scholar Faust is part of "the historical formation known as the *res publica litteraria*," or the Republic of Scholars, a discourse network that prevents original production and "systematically prevents the fortunate occurrence that a living Spirit could manifest itself to another Spirit" (4). According to Kittler, Faust's "oh!" stands for a sigh (ach!), a nameless soul cheated of its "unique" existence by language (*sprach*),

whose chains of signifiers trap it in the “sigh of self-lament” (3).<sup>52</sup> In the Republic of Scholars, instead of production, there is “endless circulation . . . without producers or consumers, which simply heaves words around.” Its members “go ‘rummaging in phrases,’ for as long as life or reading lasts, in a heap of books ‘gnawed by worms, covered with dust’” (4). Faust, the depressed scholar, sits alone in a library where he “reads, makes extracts, and writes commentaries, in order then to dictate to his students in lecture what old books have dictated to him” (4). Powers, the depressed novelist, sits alone in his office in the Center, “writing out, in different colors, as many first lines of books as [he] could remember” (11). This pleasant distraction is a childlike version of his Master’s Comprehensive Exam: “We’d do two hours of IDs. You know. ‘Hand in hand with wandering steps and slow . . .’ Name the author, work, location, and significance” (43). Both Faust and Powers—or the “doublings”<sup>53</sup> Goethe/Faust and Powers/Powers—engage in radical experiments to re-invent obsolete discourse networks.

Faust first brakes the circulation of dusty words by grabbing a book by its author. In his “dungeon” of a library, “confined with books,” Faust desires an unmediated reality, which he glimpses in the name of the author Nostradamus, whose mysterious book he has snatched from a shelf. Writing in unspeakable ideograms or magical symbols, Nostradamus’s “hand” attracts attention to itself as a unique signifier and prevents anonymous rummaging and copying. Faust, ecstatic, exclaims, “Was it a God that wrote these signs?” (qtd. in Kittler 5). The unsayable text at first draws Faust toward that spirit for which the “oh!” stands. Or, as Kittler says, “everything takes its course as if his book

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<sup>52</sup> Kittler cites Friedrich Schiller: “Why cannot the living Spirit manifest itself to the Spirit? Once the soul *speaks*, then, oh!, it is no longer the *soul* that speaks” (3).

<sup>53</sup> See Hayles, *How We Became Posthuman*, pp. 261-72.

were no longer a book” (5). Yet, the fascination cannot last. Even (or especially) if a “God” authored these signs, the divine act of writing does not appear, as the writer always withdraws once the signs are written. The written text draws the reader “away from the producer to the product,” much like the commodity draws the consumer away from its producer toward its self as fetishized object of value. Kittler concludes, “Faust the interpreter of signs is once more robbed of what his experiment meant to introduce into the configuration of early modern knowledge: Man standing behind and above all bookish rubbish. With a return of the primordial sigh,” Faust ends the trial (6).

The second test begins when Faust moves along the chain of signifiers and contemplates a second symbol. He exclaims, “how different is the power of this sign!” (qtd. in Kittler 7). In the experiment’s second attempt at slotting “Man” into the discourse network, Faust substitutes the “consuming reader” for the producing author. Now he “no longer transforms the sign of a sign into the representation of an absent author,” as he did when he read the first sign and speculated the existence of a God behind it, “but into its effect on him, the reader” (6). Although he initially feels his “powers growing,” the effect does not last. In wanting to “suck on ‘breasts’ or ‘Wells that sustain all life,’” Faust loses his power over “the conjured sign”—this time the earth sign—and “disappears into the weave of textum of the signified” (7). Ultimately, reading turns out not to be production. Although he somehow speaks the magical symbol out loud, this act only makes “the designated Earth Spirit” appear.

*Galatea 2.2* records the similar experiments of another tragic scholar. However, at the end of the twentieth century amidst the “footrace” to the end of time, this subject is more properly called the “knowledge worker.” The novel begins with Powers the

narrator searching for Powers the author of “a portfolio that now seemed like the work of someone else” (3). Visits to Lentz’s office and later to Taylor’s old attic classroom turn out to be Faustian searches for authors behind magical symbols. In the latter case, the mysterious author has vanished, and could only be called back as a ghost, or in one’s memory:

Nothing had happened here in this room’s hundred years. Nothing that bore remembering. I started to shake. Each breath set off a body-length shudder. I could not imagine how things had gotten so cold. . . .

I don’t know what I wanted. Some spectral second glance at the teacher in action. The chance to ask why the world refused to answer to the poems he’d made us memorize. I needed to revise the place—first love, discovery, vocation, eighteen. To do take two. The update. Correct the shape, improve the story I’d made of where I’d been.

I should have tried something out loud. Something from one of those beaten-up anthologies, the crumbling bastions of the spent, pre-posthumanist tradition. Taylor could recite all the way back to the foundations. We could not be civilized until we could remember. He died knowing stuff he had committed to permanence at an age when the rest of us were learning *Engine, engine, Number 9*. Whole cantos, half-chapters from books even the titles of which I had forgotten.

A bell rang, one of those forlorn indicators of ten to the hour and class change. I left on command. (193)

Even in Powers’s data retrieval of the ghost author, the passage gives the impression that Taylor is no magician with access to an unmediated past or scene of creation. Like Faust, like Powers, Taylor quotes from texts, circulating the dusty words from a lonely study. He’s just been doing it for longer.

Powers first attempts to brake his own somber circulation through the Center’s midnight when he tracks down the author Lentz, who leaves his mark on Powers: “Not even I could forget such a figure” (13). The initial meeting, a scene to which I will return later, does not tell Powers anything about this mysterious figure, who in fact does not

even offer his name. Powers, however, seeks him out, not under cover of the moon, but of the more mundane “daylight”—or perhaps more tellingly, under the artificial moonlight of the corporate day. He returns to obtain Lentz’s name from his office and proceeds to seek the author through the discourse network of the Center: through promotional brochures and pamphlets, Internet articles “browsed” from his office, and a discussion group on which he lurks. Yet, just as in Faust’s quest, the finished product misleads. Powers comes no closer to the strange writing scene and its creator, instead discovering its content, which he records for us in a brief lesson on the field of connectionism, just as Powers the author records many such brief lessons in his other novels.

Previous sighing versions of Powers have taken the form of the “consuming reader.” Upon completing his Master’s exam, Powers walks away from the Ph.D., disappointed because while he hoped “literature might indeed teach me about my father’s death,” “the study of literature” did not lead to such author-creators, but only to “its own theories about itself” (65). Powers takes a job in industry, working a “job as a second-shift computer hack, the complete opposite of the life I’d been leading,” and becomes the intoxicated, consuming reader, who, “with nothing to do but read” for part of his time on the clock, reads voraciously, “at random, obeying only the forgotten principle of pleasure” (65-66). Just as in *Faust*, the failure to find an author-father leads to performing the test for a reader. When C. arrives in B., she too falls under the spell, and the two of them “read, reread everything that time had prevented us from reading properly until then” (96). Powers the intoxicated reader now transforms signs into readerly effects. He becomes a vocalizing reader, giving breath to written signs where

once he was either mesmerized by the author-creator, Professor Taylor, or bound by the constraints of the Master's exam. The end result is that Powers becomes an author himself, temporarily turning his companion C. into one of Faust's swooning female readers with his "elaborate seduction" (105). Powers publishes this novel and then three more, before finding himself at the Center beginning again with the Faustian experiment.

In a re-creation of Faust's experiment there can be no room for female authors, only female readers. C. thus can only play the part of the swooning female reader to both Powers and his literary father, Professor Taylor, to whom "C. grew as devoted as" Powers himself (144). Powers, being a male, is eligible for authorship, but he comes no closer to the magical authorship Faust sought, because he discovers of his first novel that he was merely "transcribing" C., using "all the material I had at hand" (104-05). This material, according to *Galatea 2.2's* narrative, amounts to the contents of a reading journal and the stories C. spun for him. Powers's first novel, brilliant though it is, thus remains an act of circulation, a mere "heaving" around of words, no matter how poetically Powers expresses his soul: "All we can ever do is lay a word in the hands of those who have put one in ours" (103-04). Now, flash forward to the present. When Powers attempts to move his would-be fifth novel within his fifth novel past its opening line, the previous slotting no longer works. He writes, "picture a train heading south," and the train takes him to an outdoor café and strands him there, to spend "forever" reading (211).

### **A New Discourse Network**

*Faust's* third test is the successful one, insofar as it causes a new discourse network to come into being. It is also more "modest" than the previous two. Kittler writes

that in the third test a single authority, “represent[ing] the enthroning of Man,” takes the place of both the magical productive author and the intoxicated consuming reader (7). Faust still seeks a gratification that could fill a void or “slake a thirst” of the soul, but he no longer requires a “unique Source.” Any surrogate text will do. Kittler observes that, “for once, Faust seems not to transgress the limits and restrictions of the university discourse; he translates ‘the source of life’ in good humanistic fashion as bibliophile *ad fonts* and takes a book as a voice of nature,” and “this limitation assures that the third test will be successful” (8). When he takes the Bible from a shelf and translates “Word” into “Act”—after considering and crossing out “Mind” and “Force”—Faust leaves the Republic of Scholars. “In the new space of the scholar’s tragedy,” Faust effects an epistemological break. He decides, “the *Word* does not deserve the highest prize, I must translate it otherwise,” and consequently inverts the scholarly activity of rhetorical paraphrase, making paraphrase denote the word’s “true” meaning (11).

For Kittler, Faust’s operation signals the emergence of hermeneutics, the new science of a new discourse network. The university system Powers describes in *Galatea 2.2* is a descendant of the formation that emerges with the new science. In *Galatea 2.2*, this discourse network acts in the way of *Faust’s* Republic of Scholars, first, as the university in which Powers was educated, and second, as a contemporary scene dominated by postmodern literary theory. These two versions are actually not so neatly separated in *Galatea 2.2*: Powers’s descriptions of his education often sound like the old Republic of *Faust*, with its endless citation of great works, and the version that will provide the human opposition for their Turing Test still may practice hermeneutics—as different as it seems from the free translation of the *Faust* scene. That in fact

appears to be a source of opposition or tension in the novel. It is not so much that Powers and Lentz and another scientist, Diana Hartrick, resent postmodern theory's "solipsism" and "language games." Hartrick after all cannot even make headway in her copy of *Don Quixote*. Rather, they resent the study of literature's invasion into the realm of the material world, whether this would make the study of literature a science or not. Fredric Jameson's account in *The Prison-House of Language* of the emergence of the linguistic model of thought provides a valuable description of this development:

The deeper justification for the use of the linguistic model or metaphor must, I think, be sought elsewhere, outside the claims and counterclaims for scientific validity or technological progress. It lies in the concrete character of the social life of the so-called advanced countries today, which offer the spectacle of a world from which nature as such has been eliminated, a world saturated with messages and information, whose intricate commodity network may be seen as the very prototype of a system of signs. There is therefore a profound consonance between linguistics as a method and that systematized and disembodied nightmare which is our culture today. (viii-ix)

When *Galatea 2.2* marks the distinction between Powers's education and the young graduate student A.'s, that difference may be the result of this linguistic model's emergence. The difference, as Powers the author presents it, is complicated. On one hand, the autobiographical author often laments the prevalence of "postmodern postsolips[ism]" (40). On the other hand, the problem with literary theory is simply that it's become "too difficult" for him (191). This difficulty could easily be explained by the fact that Powers gave up his studies and went away to become a software writer and then a novelist. He should no more expect to be up on "what counts as knowledge" in the field than he should expect to know all about neural nets before he looked up the topic on the Internet. It seems perfectly obvious that he feels as out of place in the English building as he does initially as the "fly on the wall" at the Center.

The combination of the two sites, as well as Powers's inability to feel completely at ease in either of them at the beginning may also represent the uneasy interdisciplinary mix required of the immaterial commodity. In "Capitalism in the Computer Age," Tessa Morris-Suzuki argues that "private exploitation of social knowledge is becoming more important" than "direct exploitation of labor" (64). This argument is similar to Hardt and Negri's and similarly refers to *Grundrisse's* image of the social laborer as a transcendence of the labor theory of value. Yet, Morris-Suzuki also stresses that such an economic system may remain capitalist, but is not a "generalized system of commodity production" (64). This computer age economy features a mix of material and immaterial commodities, or material production and knowledge production. If it's not a generalized system of commodities, it seems, then, that what constitutes the wavering is the status of the information commodity.

Morris-Suzuki names three aspects of the capitalist production of immaterial commodities, or the intermingling of the two types. First, corporations make use of informal social knowledge, in the form of culture and language in the reproductive sphere (Morris-Suzuki names parenting as the prime source), and formal social knowledge, in the form of the education system, libraries, and so forth. From these two levels of social knowledge, corporations make private knowledge, from which they use the patent system to extract monopoly profits until the patents or the monopoly on technique expires. At which point, they become social knowledge, flowing back to the beginning of the feedback loop. Second, the exploitive relationship in computer age capitalism appears to change from a direct boss to worker relationship. Yet, although in theory anyone can take advantage of the two levels of informal social knowledge,

corporations use their numerous material assets to control information assets.

Corporations “alone have the wealth and power to recruit leading experts in various fields of knowledge, and it is precisely such a bringing together of disparate knowledge which enables important inventions to be made” (67). Indeed, invention has become increasingly corporate. Morris-Suzuki points out that the number of patents held by individuals has fallen in the U.S. from 81.7 percent at the beginning of the twentieth century to 23.2 percent by the 1970s (66). By 2001, corporate share of patents rose to 82 percent, according to the National Science Board. Third, the space of resistance has changed. If the production of private knowledge from social knowledge has become more important than commodity production, then the space of exploitation is amorphous and resistance can take place virtually anywhere.

The Center meets all three criteria listed above, thus demonstrating what emerges in the new test. Rather than the solitary study, *Galatea 2.2*'s successful test begins in a bar. Powers wanders in one night for his first beer since returning to U. A knowledge worker is, after all, expected to work at all hours, both during the corporate day and the Romantic night. In *Plowing the Dark*, Powers's TeraSys workers call their pub “the office” (81). Here Powers has come to think through novel ideas when he is interrupted by a group of scientists in the bar, including Lentz, who pull him into their debate. They expect him to serve as a reinforcement against Lentz's accusations:

*You* are the ones evoking mystic mumbo jumbo. Is the problem computable in finite time? That's all I want to know. Is the brain an organ or isn't it? Don't throw this 'irreducible emergent profusion' malarkey at me. Next thing you know, you're going to be postulating the existence of a soul. (42)

For Lentz, the connectionist, consciousness is a deception: “Conscious intelligence,” like Faust's magician author, “is smoke and mirrors” (86). Instead, neural nets organize

data input through a process called “spreading activation,” in which input signal pattern flows between neurodes on connection paths. If the input sum that reaches an individual neurode exceeds it, it fires, passing along the signal to other neurodes. The process repeats itself through various layers until it reaches the output layer, at which point the net compares the actual output to the desired output and backward propagates the difference, so that the connections can adjust weights accordingly.

At the bar, when Powers is persuaded to talk about his past, and his field of study and the Master’s list comes up, Lentz proposes using it as a “test domain.” Powers then betrays his recruiters:

“Test of what?” I asked, as politely as possible.

“We’re going to teach a machine how to read your list.”

The words floored me. “You can *do* that.” (44)

With these words, Powers seals the pact and the third test is as good as finished. The sighing Powers has found a successful substitution for the creative act, or for the true possibility of authoring events.

Just as in Faust, the third test succeeds because it is more modest than the first two. First, the brain of their thinking machine does not have to correspond with the workings of its human counterpart; rather, it just has to pass a Turing test to prove it “as intelligent as” the human brain. Second, since the human counterpart of their “mechanical master’s student” is just some “fashionable twenty-two-year-old North American whiz kid imitating a French theorist in translation,” all they have to do is “push ‘privilege’ and ‘reify’ up to the middle of the verb frequency lists” (91). And if *Galatea 2.2*’s readers suspect the scientist Lentz has overstepped his boundaries, “he’s seen the stuff” Powers is talking about.

But the “mechanical master’s student” is not a real thing; rather it is the illusory result of reading conditions. As Powers states later in the novel, the hope that the reading machine, Helen, can pass her Turing test lies in the “conventions of writing” (228). The work that remains for the literary theorist reading *Galatea 2.2* is to perform one’s own experiment and slot the pact scene. Powers, like Faust, merely heaves words around a discourse network that has become all circulation, no production. At the core of all of Powers’s sighing is the belief that neither his own authorship nor that of the literary theorist can get at some kind of true knowledge or access to the real. The discourse network constrains each possibility by preventing both writing and reading. As Powers once told C., the publishing industry is “all nonsense. Market-making, for an increasingly smaller market.” And media objects that surround the publication of a novel “spare people the inconvenience of reading” (213).

Powers, like Faust, invents a new reading arrangement, slotting the neural net or the reading machine in the place of Faust’s act of free translation. Powers, like Faust, makes a deal with the devil. In Kittler’s reading of *Faust*, Mephistopheles stands in for the figure of authority in the reform of universities *Faust* appears to record. Here Kittler turns to Nietzsche’s reading of the new educational institutions of Goethe’s time, a lecturing procedure corresponding precisely with the “Faustian writing scene.” The individual can say what he wants and listen when he wants, but,

standing at a modest distance behind both groups, with a certain tense, supervisory mien, is the state, there in order to make clear from time to time that it is the purpose, goal, and essence of this odd speaking and listening procedure. (Nietzsche, qtd. in Kittler 18)

“Academic freedom and poetic freedom . . . are both guaranteed by the state” in the new discourse network, but this arrangement depends of course on the guarantee that

this freedom is not free. In Prussia in 1794, the same act that decouples educational institutions from the church and re-attaches them to the state also grants copyrights to books. Educational reformers move quickly to radically revise the training of reading, revamping a system in which students learned from repetition of biblical passages whose content would be nonsense to their ears, and introducing the new commandment that students read only what they can understand (Kittler 19-20). At the same time, the rule is passed that judges who refuse to judge, on the basis of some obscurity or inadequacy in the law, will be punished. By the same token, then, hermeneutics ensures that all texts are read as inherently intelligible rather than as a matter of what has been programmed. Command, or the order-word of the state, stands outside and organizes this reading arrangement.

Powers makes his deal with Lentz, the Mephistopheles of *Galatea 2.2*'s writing scene. The figure of authority for which this devil stands is suggested by Powers's initial meeting with Lentz, in which he is lured by the plaintive music:

The music's hopeless peace emboldened me. I came alongside the door and looked in. Except for the sound, the room was deserted. I bathed in the emptiness. Heaps of equipment, much of it bare boards and components, shimmered in the dark. Some of these devices produced this ethereal interpretation, while others only absorbed and contemplated it.

From a cave of instruments in the corner, light glinted off two small surfaces. (12)

Here we have at the beginning of the novel a doubling of Powers's trip to Taylor's empty attic classroom. But where Taylor's classroom appears dusty, forlorn, and representative of the English building's marginal status in the U.'s knowledge production, this room offers something in its "heaps of equipment." The tone of this passage is much like that of the sublime scene of Powers wandering the Center at

night. Yet, perhaps the scene offers only spectacle. The room is empty. Its light is as much empty reflection as it is production. Or perhaps it is simply unreadable: “Bare boards and components” comprise the unrepresentable machines of the technological sublime and may be unreadable or untranslatable to the hall-wandering humanist—that is, unless one simply translates freely, substituting a sense of history for mere machines:

What I had taken to be two flat LCD panels flickered into a pair of near-opaque glasses. The creature behind them now gazed at me without registering anything. . . .

The head attached to these glasses peaked in a balding dome. From freakish frontal lobes it tapered away to nothing at the temples only to erupt again in a monstrous beak. Even after I oriented the image, the face that shocked me. (12)

Thus the monster stirs and gives itself away, and in so doing gives away that for which it is only a figure. The eyes that pass for LCD panels are the clue that gives the devil away. Standing behind the devil Lentz and ordering the pact scene of *Galatea 2.2* is the Center. Since “most of [Lentz’s] grants are corporate, these days,” the Center is simply this contemporary writing scene, this contemporary reform of educational institutions, commanded by capital, that “rhino” that Powers fears he has not accounted for in any of his novels prior to *Gain*.

### **Virtuosic Labor**

I argue that Powers’s pact demonstrates the emergence of the XL space of knowledge production, a scale that could be understood by Hardt and Negri’s figure of the “metropolis” in *Commonwealth*, as well as Paolo Virno’s concept of virtuosic labor. Paolo Virno uses the concept “virtuosity” to explain how the general intellect works through living labor rather than dead labor objectified in a system of machines.

Virtuosity, in Virno's understanding, has two characteristics. First, it fulfills itself without materializing in an end product. Second, it requires the presence of other people (52).

Virno uses this concept to understand the problem of productive and unproductive labor, in particular, what to make of post-Fordist labor that has taken on "servile" characteristics in the sense of Marx's definition of unproductive labor. Unproductive labor, according to Marx, performs for a wage but does not lead to further capital. Its work does not materialize in an autonomous commodity.

This problem is absolutely critical for understanding post-Fordist labor. Furthermore, I would argue that we cannot understand how the production of value operates in contemporary capitalism without addressing this problem. Hardt and Negri's metropolis is an *autonomia* way of solving the problem. It focuses on the creative acts of the multitude outside of spaces directly organized for capitalist production:

The metropolis is a factory for the production of the common. In contrast to large-scale industry, however, this cycle of biopolitical production is increasingly autonomous from capital, since its schemas of cooperation are generated in the productive process itself and any imposition of command poses an obstacle to productivity. Whereas the industrial factory generates *profit*, then, since its productivity depends on the schema of cooperation and the command of the capitalist, the metropolis primarily generates *rent*, which is the only means by which capital can capture the wealth created autonomously. (250-51)

Rent, however, does not create new surplus value. So the emergence of this metropolis as the key site of biopolitical production seems to uphold the end of work thesis in that the post-microelectronic age, as Gorz argues, does not make possible the advancement of new phases of accumulation through technology. Hardt and Negri argue, however, that this is a space of production:

Today, finally, the *biopolitical city* is emerging. With the passage to the hegemony of biopolitical production, the space of economic production and the space of the city tend to overlap. There is no longer a factory wall that divides the one from the other, and “externalities” are no longer external to the site of production that valorizes them. Workers produce throughout the metropolis, in its ever crack and crevice. In fact, production of the common is becoming nothing but the life of the city itself. (251)

As I showed in the first chapter, Hardt and Negri propose a revision or abandonment of Marx’s labor theory of value based on this new form of production that produces not the means of social life (which could be represented by the commodities dotting the dead landscape of XXL, such as appliances and automobiles) but social life itself. If the dominant form of production creates rent rather than surplus value and creates communication or “social life,” then this dominant form of production is not actually productive labor, according to Marx’s definition, since it has no material end in the form of capital. This dominant form of labor would have to be a thorn in the side of the collective capitalist class, if that was the case. Moreover, it is unclear what constitutes production in Hardt and Negri’s metropolis. I see this concept as a continuation of *autonomia* theories of self-valorization, in which the production of social life included acts like looting, squatting, and auto-reduction of transportation prices. It is possible to see how such creative acts could be captured from the outside by capital, as in the phase of formal subsumption, but it is hard to see how they would directly be productive themselves, if we take production to mean the production of surplus value, or of capital.

While the concept of metropolis is suggestive in terms of scale and demonstrates networked, less site-bound spaces of production in post-Fordist capitalism, Hardt and Negri’s argument for the way it produces or what it produces ends up in the concept of ground rent and subjective, autonomous practices whose theorization only begins with the microelectronic era. The problem with this latter characteristic is that the

microelectronic era ushers in an end of work phase thought by Gorz to be irreversible. This change marks the death of *operaismo*, or workerism. Once the total employment of the late welfare state factories such as Fiat turned into large numbers of unemployment and large-scale automation, the theorists of workerism sought new forms of struggle, which led to concepts such as the social factory, a concept Hardt and Negri obviously draw from in their understanding of the metropolis. However, I am more concerned with the problem of economic production of surplus value according to Marx's definitions, and thus see Virno's concept of virtuosic labor in the publicly organized space of cooperation as the more useful way to understand the production of immaterial labor, and what its emergence signals.

I am calling this scale XL to represent a landscape of production in the sense of how post-Fordist capitalism escapes the factory for larger sites of production—which are in fact networked, virtual sites of production. I have chosen Powers as the author here primarily because of two novels that investigate such sites. The novel on which I chiefly focus is *Galatea 2.2*, in which the massive space of the Center exists as a single space, like a factory—except not really. Under its roof are brought together so many different forms of labor that it does not really function as a factory in the sense of a manufacturing site where all the workers are gathered together to produce a certain type of material commodity. The Center's virtuality, as well as its massive size, speed ("data autobahns"), and complexity all coalesce in a single image when Powers and Lentz use the Center's enormous computing power to create a virtual version of their Pygmalion by tapping into its massive server to create a virtual XL node of production. But size is not the only concern here. Since the most advanced form of production today

is immaterial labor, I focus on an XL site of knowledge production. So the large industrial spaces that exist in other parts of the globe, I ignore here. These spaces will figure into the chapter on the XXL scale, where I consider how all of these sites work together in global capitalism.

Virno theorizes the space of this type of production under the abstract term he takes from Marx: "cooperation," which he argues is a term for the "publicly organized space" that labor requires once it becomes virtuosic. This scale is crucial to Virno's argument, because the only way he can make virtuosic labor productive, rather than servile, labor is to consider it "in its totality" (54). There are two reasons for him to do so. First, Virno wants to show that a phase shift has occurred, such that capitalism has evolved to a point that Marx's categories no longer hold. Thus, similar to Negri's writing in his monographs and his texts co-written with Hardt, Virno's argument depends on the premise that we have gone beyond Marx. Virno writes, "the crucial point is [ . . . ] that while the material production of objects is delegated to an automated system of machines, the services rendered by living labor, instead, resemble linguistic-virtuosic services more and more" (58). And Virno later summarizes this argument by asking,

If the entirety of post-Fordist labor is productive (of surplus-value) labor precisely because it functions in a political-virtuosic manner, then the question to ask is this: what is the *score* which the virtuosos-workers perform? (63)

Virno argues that the characteristics of virtuosity change the nature of servile unproductive labor into productive labor. These characteristics are essentially those Hardt and Negri identify with their concept of immaterial labor: language, communication, affect.

It is not clear why precisely these characteristics should produce surplus value for Virno but not for Marx, for post-Fordism but not for Fordism. Language and communication are not new traits to the labor process. Kittler's media history *Discourse Networks 1800/1900* shows this clearly in the context of the type of setting I discuss in this chapter: the university, which today we might more broadly conceive of as a site, networked and virtual, for the production and dissemination of knowledge. For instance, one form of labor displaced by the 1900 network around the symbolic production of the typewriter was the clerk. Those authors produced language through hand-written documents, and it was widely considered a de-skilling of their work to be replaced by typewriters. Another problem is that Virno cannot explain this re-theorization using Marx's definitions. We have to take him largely on faith. Hardt and Negri's arguments work similarly: first, labor has changed, and second, this means we need a new labor theory of value. To proceed differently would be to begin with the labor theory of value in order to theorize the forms of labor. In short, my argument is that the first point has no intrinsic connection to the second unless the authors argue that we are no longer operating under capitalism. Since they are unwilling to argue this much, it seems to me the argument should proceed in inverse order, if the two parts are to be connected at all.

This problem brings me to the second reason for Virno to define the space of this production under the non-spatial and abstract heading "cooperation." If Virno can properly enlarge the space of production to incorporate virtuosic labor and its potential material end, then Marx's categories of productive and unproductive labor apply; and what looks like unproductive labor may appear to lead to the enlargement of capital

after all. This point may seem contradictory to Virno's argument. But I do think it is apparent that defining the space of production as "publicly organized space" and "cooperation" makes the scale of production large and amorphous. Since Marx has already used the term "cooperation" to describe initial capital formations of large-scale production using a different form of labor, Virno here has to be defining a different type of space altogether, one he extrapolates from the autonomist concept of the "social factory," a key concept in the shift from workerism, which focused on value production and struggle within the factory, to autonomism, which focused on value production and struggle outside of the factory.

Here is what is at stake in a critical reading of the concept of virtuosic labor with the end of work rubric: if virtuosic labor of the space of cooperation or the metropolis is in effect a new dominant form of labor and does produce surplus value, then Marx's definitions are overturned. Since concepts like the labor theory of value and productive and unproductive labor not only theorized how surplus value was produced, but also the conditions necessary for the growth of capitalism (which is a tautology since capital must necessarily grow or die), a new theory—whether (drastic) revision or abandonment of Marx's labor theory of value and concepts of productive/unproductive labor, and the spheres of production and reproduction—would also be required to reconstruct such limits to capitalism. But if virtuosic labor could be said to be unproductive following Marx's definition, then it might be an entirely different site of struggle or (as I will consider in XXL) a parasite on the production of surplus value going on in other parts of the globe.

Virtuosic labor in this sense could take three possible forms. First, it could take the form of unproductive labor, because it is capital-intensive (as the scientific production at the Center seems to be). Machines do not create value, but machine-intensive industries reap the most profits, a reward for capitalists who increase capital through the adoption of technology and the production of relative surplus value. Biotechnology would be an excellent example of this form. Virtuosic labor remains a form of production, just not one capable of maintaining capitalist growth if it should become required to be dominant quantitatively, because new cycles of capitalist expansion reduce employment. Second, it could take the form of unproductive labor, because it is not concerned with the realm of production but rather that of circulation. Under this theory, the production of a commodity like athletic sneakers actually requires very little labor and capital. The capitalist producing such shoes can generate huge amounts of profits employing cheap living labor overseas. But the problem comes in realizing these profits. That's what the sphere of circulation contributes to the production of the capitalist system as a whole. White collar knowledge workers coming up with hip ways of advertising sneakers or a celebrity spokesman like Michael Jordan—who costs more than the entire production costs of a line of shoes—endorsing them represent workers in the circulation sphere. These are unproductive laborers who do not produce surplus value but who are necessary for its realization so that capitalist production as a whole can continue and grow. The growth of this class would signal a crisis in that production itself more and more is not enough to maintain the system.

Third, it could take the form of Gorz's disguise of work's end. In this form, we would have unproductive labor not concerned with circulation and not contributing to the

realization of profits. Rather, this is an increase of servile labor, and the production of affect and emotion that Hardt and Negri see as a new form of production would be read instead as a scheme that has grown up ad hoc in order to help the capitalist realize profits by re-distributing revenue. Once the capitalist cannot find profit through the investment in more capital and thus creation of jobs, the system offers a way to prevent simple hoarding and an alternative to finance and currency trading. Rather than investing all its profits, profits become payment for servile labor, to provide would-be workers a way to purchase commodities.

### **Dark Zones, Potemkin Villages, and a Recording Utopia**

Suddenly, it all falls into place. The real problem with literary theory—from which Lentz distracts Powers with his encouragements to go on citing old authors, breathing their words into their reading machine—is its inability to get grants. Does this mean the graduate students in the English building maintain a distance from the commands and order-words of the corporate hermeneutic? Probably not. They, after all, are rushing around, “needing two books and ten articles by age twenty-five to keep one’s head above professional floodwaters” (191). Even so, they are kept at a distance. As Diana Hartrick explains to Powers why literary theorists maintain the delusion of the linguistic model, “The literary theorists have to get tenure. And they have no hard facts to get tenure with” (126).

But what constitutes facts and what constitutes theater is a tricky thing to determine, as Powers’s unique writing scenes and spaces demonstrate. In *Galatea 2.2*, Powers’s and Lentz’s reading machine loses its test, while the grad student A. makes clear how little they actually know about what does count as knowledge in her field. In Powers’s seventh novel, *Plowing the Dark* (2000), workers at a corporation called

TeraSys, modeled after Microsoft, eventually admit or discover (depending how much they know) that not only do they only work on what TeraSys lets them, but that this work is always years behind the military's own experiments in theater. At the same time, the amateurs often deliver where the professionals of fact fail. In *Three Farmers*, one of the boy farmers masquerades as a reporter on the front in World War One in order to avoid fighting on that front. Soon he discovers the real reporting is itself a masquerade, and his attempts to deliver the actual scoop lead him to amateur photography and avant garde art. And in *Prisoner's Dilemma*, all the media propaganda that went into mobilizing World War Two gets treated as content to be refashioned into the tape recording utopia, Hobstown.

Writing about the problem of big architecture—which increasingly means the arrangement of writing scenes in an economy made up of knowledge workers—Rem Koolhaas notes in *S, M, L, XL* the architect's subservience to the engineer (“Engineer,” I should add, is what Powers calls Lentz) in the building of such large spaces that inevitably require large amounts of capital. Calling “dark zones” those spaces in architectural buildings that are blacked off for the architect, Koolhaas describes the way in which size causes an exponential increase in the amount of such darkened zones, as the need for technological services, equipment, controls and so forth systematically increases. As a result, as the size and sophistication of the building increases, the domain of the architect shrinks, giving way to the engineer:

The dark zone is not only strictly ‘useless’ for the future inhabitants of the building; it also becomes conceptually inaccessible to the architect, who has become an intruder in his own project, boxed in, his domain a mere residue of the others’ demands. The architect’s arguments are always opinions; they cannot compete with the aura of objectivity that shields building technologies from critical probing. (In this reading, ‘high tech’ is not

only ridiculous in its decorative posturing, but worse, celebrates the final masochistic surrender of the architect: the substation by technical impediment of architectural possibility. (665)

The lightning flash of Koolhaas' insight can illuminate the writing scenes in Powers's novels as well. These dark zones can be spaces of interdisciplinarity, in which the non-technician or non-scientist can make an intervention, and in a sense this is the kind of work Koolhaas is able to do once an engineer takes OMA's "amateurism" seriously.

But even this reading gives too much credit to the engineers and technicians who act as guardians of fact. The problem is not simply solved by making an intervention into the "dark zone," which is a space of non-expertise or of amateurism. Rather, the dark zone is also a dark zone for the technologist. When Koolhaas says, "the architect's arguments are always opinions," unable to compete with the "aura of objectivity," he makes the fundamental problem that of what counts as knowledge, or how discourse organizes knowledge. What counts as the hard science of knowledge? What counts as the soft humanism of subjectivity? Unless the humanist wants to find herself kept out of an increasing number of black boxes, she should heed Kittler's warning concerning the university:

If envious states succeed in persuading the university in general and cultural studies in part to think of themselves as a mere compensation and a mere assessment of the consequences of technology, than eight centuries from Bologna to Stanford will have passed in vain. (254)

Moreover, as Kittler notes, universities and their departments are now technically uniform. That is, they all have and use the same hardware. With methodological integration—which would in part mean translating notation systems of the different knowledges into each other—thinking can begin again. For Kittler, though, this thinking will not begin if the cultural critic or, in this case, the architect sees technology as a dark

zone of hard science, or, in other words, fails to see through its aura of objectivity. Indeed, under conditions of capital, technology, including architecture, is hardly neutral.

Suggestively, Koolhaas calls this possibility of “becom[ing] innocent about architecture” the chance to end the “Potemkin world” (668). If Potemkin villages were not-filled-in real buildings, it would seem that Koolhaas’s envisioned world where so-called amateurs are allowed into the forbidden zones would be a Potemkin world. But since no one really *lived* in the Potemkin villages, Koolhaas also suggests that we are not really living in our current big architectural spaces. Such spaces seem to signify so much but deliver so little, certainly no “new potentials for the formation of space” (668).

The overlap between Koolhaas’ analysis of space and the writing scenes of Powers’s novels is suggested, however, by another author. In a *New York Times* article on the stagecraft of the second Bush White House, Elizabeth Bumiller coined the term “Sforzian backdrops” to describe the fake worlds created or alluded to in the theater arranged by Scott Sforza, former ABC producer turned White House communications worker. Backdrops range in scale from the filming of a speech in South Dakota that shot Bush in profile, his face aligned perfectly with the heads of Mount Rushmore, to a \$250,000 set built during the Iraq War in Doha, Qatar at United States Central Command forward headquarters. But perhaps the ultimate of this Potemkin world is Bush’s Crawford ranch, 1600 acres just outside of town that Bush purchased in 1999. If dark zones represent spaces blocked off to the non-technician, the ranch would be one huge black hole for the fake rancher Bush, except for the fact that the ranch itself is a Potemkin village.

A clear connection exists between the Potemkin world that closes off the possibility of new productions of space and collective formations and the Sforzian backdrop that creates the illusion of living in such a world. In the setting of *Galatea 2.2*'s Center, it makes sense to ask, as Alan Liu does, if the academic controversies of the past two decades, which he describes as attempts to come to terms with the idea of knowledge work, simply amount to the recruiting of professional interpreters for an oncoming merger of the university with the Sforzian world of "software-telecommunications-cable-Hollywood" (4). Indeed, if Liu has correctly described the pact-scene that *Galatea 2.2* can only allegorize, then we might heed his provocative prediction that literature is dead but the value of the literary may survive in other forms (70). In this respect, *Gain* seems a retreat from the ambiguous devil Lentz's admonishment to Powers that just "because we've fucked things over, that frees you from having to say how things ought to be?" (319) Indeed, the post-it world of *Gain* and the crayon world and virtual reality Van Gogh of *Plowing the Dark* are less interesting Potemkin villages than those invented in Powers's earlier novels, especially in *Prisoner's Dilemma*. In an attic, similar to the workspace of *Galatea 2.2*'s Professor Taylor, dying father Eddie Hobson Sr. narrates into a tape recorder what could only narrowly be defined as a story. It's as if he got access to the forbidden dark zone of the computer hardware in the Center, where streams of text are directly productive of things and spaces, and thus directly organize people's lives. Hobstowns out Potemkins Potemkin. It's a time capsule, a missile into the future; a makeshift escapist fantasy; a place to live on vignettes; a place where the trains run on time; a home for secret fans of the possibility of another place and of the other person's story; a time in the dominant

tense; an allegory; a drawing; a word stream; a place where everything has to be “built”; a place governed by principle of self-sufficiency; a site just behind the billboard where everything is real; a diorama; a Christmas window; a practical history; a protest; an alternate history; a what if.

## CHAPTER 6 XXL

He that contemplates the extent of this wonderful city, finds it difficult to conceive, by what method plenty is maintained in our markets, and how the inhabitants are regularly supplied with the necessaries of life; but when he examines the shops and warehouses, sees the immense stores of every kind of merchandize piled up for sale, and runs over all the manufactures of art and products of nature, which are every where attracting his eye and soliciting his purse, he will be inclined to conclude, that such quantities cannot easily be exhausted, and that part of mankind must soon stand still for want of employment, till the wares already provided shall be worn out and destroyed.

—Samuel Johnson, *Adventurer* #67

### **Introduction: Menace in the Landscape**

In this chapter the scale shifts from the metropolis of virtuosic labor to the globe. Leslie Marmon Silko's *Almanac of the Dead* (1991) is a perfect literary text for several reasons for analyzing the end of work at this scale. First, it's a long novel similar to predecessors such as those of Thomas Pynchon, William Gaddis and Don DeLillo, all of whom I referenced in the first introductory chapter as mappers or systems thinkers of a global context. Silko includes characters all across the Western Hemisphere as well as a sense of a long scale of time, the latter depicted less in the novel's action than in references to history by various characters. In part, this large scope is why Larry McMurtrey compared the novel to Marx's *Capital*. Second, the novel shows how capitalism as a system depends on and requires scale transformations and interactions between various scales for the creation and realization of surplus value and for the resolution of crises that inevitably arise from the system of capitalist production. In depicting this dynamic, *Almanac* thus encompasses a multitude of scales.

Third, its representation of the interconnection between North and South America works as an allegory for two poles of the end of work rubric. On one hand, *Almanac*

depicts the U.S. as a dead space, destroying natural resources and filling them with machines and other forms of fixed capital at the expense of people, or the variable capital on which the system depends to produce value. As automation and other forms of high technology dominate production in the U.S., capitalism appears to have transcended the law of value as Marx understood it. Capitalism in this space appears to abandon production altogether for land speculation and the stock market, while those left out of such circuits similarly pursue unproductive labor forms, such as smuggling, to generate wealth. These forms of capitalist work are unproductive according to Marx's definition. Their appearance in the novel both implies and coincides with other forms of work that, more problematically, may be defined as unproductive, but which Hardt and Negri have defined as productive. On the other hand, *Almanac* depicts an indigenous army that arises out of South America. The reader witnesses these people revolting rather than working, but they represent—according to my opposition—the masses of people working in the “periphery” (or global south or third world) who produce vast amounts of surplus value that are absorbed by a high-technology center. This is what is meant by Marx's term “average rate of profit.” This scale thus reminds us that capitalism itself is one vast ecological machine stealing our time and re-distributing the surplus value across its many nodes and behind our backs.

Silko's *Almanac* makes it possible to see this staging between the two poles primarily through her emphasis on the land, through both her descriptions of landscapes from various characters' points of view, and her formal premise that the land is an actor. The formal premise of the novel is that the spirits of the dead, which exist in the land itself, will rise up to help the indigenous people re-take the land from the European

capitalists. In this way, Silko revives the Native American landscape-menace of James Fenimore Cooper's great Leatherstocking romance novels. In his *Studies in Classic American Literature*, D. H. Lawrence calls these novels "presentations of a deep subjective desire;" and—if they are not realistic—they are "real in their way, and almost prophetic" (51). He adds:

[America] is full of grinning, unappeased aboriginal demons, too, ghosts, and it persecutes the white men, like some Eumenides, until the white men give up their absolute whiteness. America is tense with latent violence and resistance. The very common sense of white Americans has a tinge of helplessness in it, and deep fear of what might be if they were not common-sensical.

Yet one day the demons of America must be placated, the ghosts must be appeased, the Spirit of Place atoned for. Then the true passionate love for American Soil will appear. As yet, there is too much menace in the landscape.

But probably, one day America will be as beautiful in actuality as it is in Cooper. Not yet, however. When the factories have fallen down again. (51)

Cooper's vista, as Lawrence points out, ends at the prairie. Silko takes us farther, to the U.S.-Mexican border and beyond, and meanwhile the factories are falling and the "Spirit of Place" actively seeks atonment.

What is this "Spirit" exactly? My argument is that in *Almanac* the "Spirit of the Place" could represent the contradictions within capitalism itself, which makes the landscape-menace of the Europeans' own making. This is just as it is in Cooper as well. However, this landscape-menace is no mere psychological projection. It is a machinic landscape irreversibly altered by capitalism into what Hardt and Negri have called "nth nature." Silko presents this landscape as alive. Sometimes these are simple moments where characters humanize (or animalize) elements of nature. Seese, the young woman who comes to work for Lecha and Zeta at the beginning of the novel, flies from

San Diego to Tucson and in the turbulence daydreams of “children’s books with storm clouds illustrated as big horses—wild-eyed, tails streaming down into rain and mist” (53). Sometimes these are reminders of the novel's premise, that the land itself is an actor. Calabazas and the old families successfully smuggle across the burning desert, “[b]ecause it was the land itself, that protected native people” (222). The spirits who rebel, who now “must be fed with the blood of the rich and the royal,” often act through the land, as if the land is the embodiment of the spirits (336-37). Tacho, Menardo’s Indian chaffeur, explains *Almanac*’s prophecy about the “worldwide network of Destroyers” this way, attributing “all the storms with landslides and floods, all the earthquakes and erupting volcanoes” to “angry spirits of the earth fed up with the blood of the poor” (337). When the old Eskimo woman who can cause plane crashes through the medium of television, creates a crash for Lecha, we get a similar passage. When Lecha sees photographs of the crash, “the bundles of wires torn loose from the shattered black metal boxes reminded her of intestines. Engine oil appeared like black pools of what might have been blood” (159).

Similar to the way Cooper’s Indians could sneak through and attack from any point of the landscape, so too do Silko’s Indians, who can bring down airplanes via the Weather Channel. Silko thus reverses the liberal—or “multicultural”—interpretation established when Twain ridiculed Cooper’s landscape filled with Indians. Liberal “multicultural” readings, what Walter Benn Michaels calls technologies for rewriting ideological difference as racial or geographical difference—concur with Twain. But Silko re-creates Cooper’s menace amidst an artificial landscape. We can thus read *Almanac* in order to map out the central antagonisms concerning the end of work in our present,

making it perhaps a supreme example of an ideological or political novel (the polar opposite of Michaels's label).

Silko's novel thus illuminates Negri's analysis in *The Politics of Subversion* of the transformations of postmodern or late capitalism, and its shift from the mass worker of the factory to the social worker of the ecological machine. This new ontological space overflows previous boundaries and involves both post-Fordist scenes of cooperation and the environment itself. Moreover, Negri sees the new construction or perhaps simply renewal of analysis via Marx's labor theory of value as intrinsically linked to seeing the natural landscape in this way. Negri argues that,

to take up the theme of value again means that nature can realistically be related once more to the class struggle and the rules of antagonism. This is because, owing to the capitalist revolution, nature presents itself to us in a humanized form. It is because of nature's humanity that the ecological battle is possible and can be hoped for. What could nature ever teach us if this were not the case? Nature would present itself to us as a monster or an untouchable deity even in the midst of the filth and destruction brought about by advanced capitalism. Instead capital has restored nature to us. Capital has transformed nature into a machine. It is now up to us to take control of this machine, to change the directions which the bosses have set out in, to sanitize the concept and to restore to humanity a utilizable mechanism. We shall undertake the move to ecology in full awareness of the social definition of work. *For the socialized worker, society is constituted by ecology because ecology is the socialized worker's factory.* (94, Negri's emphasis)

In Silko's *Almanac*, nature appears as a monster to the Europeans, such as Menardo, who is frightened by Tacho's storytelling or, less ominously, by the capitalist and corrupt politicians who play golf with the gangster Max Blue and have their games thrown off by the desert landscape of Tucson: "The desert was too close for most of the Californians and New Yorkers. Texans could not swing their irons for fear of rattlers they imagined coiled on the fairway" (377). Silko herself, on the other hand, sees "nature's humanity" through which "ecological battle is possible," by making nature into a kind of actor,

humanized through its association with sorcerers and destroyers, but also through the descriptions of movements through the land by fictional characters like Calabazas and historical figures, such as Geronimo.

This way of reading the novel means, in part, that we can reverse the multicultural reading given it in Michaels's *The Shape of the Signifier*. The novel's plot follows a clash of civilizations through the rising up of indigenous armies to retake ancestral land. Because it imagines this kind of clash based on what he describes as "identity," Michaels calls *Almanac* a post-political novel. In his reading, Silko imagines a revolution not of workers of the world but of indigenous armies. Because "Silko "prefers" (Michaels's term) race and the appreciation of ethnic difference to class and the elimination of economic difference," she "envisions" a revolution of indigenous people taking back "ancestral land." She is an ethnonationalist, because "indigenous" for her is racial, not geographic. That's why the Europeans have to return to another continent. This logic follows that described by Michaels as appearing in the texts of Francis Fukuyama and Arthur Schlesinger Jr. *Almanac* is a non-ideological or post-historical novel, because it privileges experience over beliefs. According to Michaels's argument, Silko is anti-Marxist in the sense that Fukuyama is also, because "they both regard present inequalities as a function not of contemporary liberal capitalism but of events that are themselves historical" (23). In other words, Silko rewrites difference of belief as difference of identity or position. It's not that she is pro-capitalist or pro-inequality, but that she makes inequalities dependent on historical events rather than an economic system that spans and brings meaning to historical developments.

In the case of Silko at least, if not for other of the novelists he cites, we might say that Michaels has turned belief into identity and identity into belief. As the prime evidence for his interpretation, Michaels cites the execution of the communist Bartolomeo by the indigenous army. Though it's true Bartolomeo is a Marxist in some sense, Silko also portrays Bartolomeo as uninterested in the actual *texts* of Marx, a problem for Michaels, one would think, given his argument. When Angelita wants to discuss Marx's texts with him, Bartolomeo only stares at her breasts. And when the execution actually comes, although outwardly the reason given the crowd in attendance is Bartolomeo's "crimes against history," we learn that La Escapia does it as much for strategic reasons, including the suggestion that Bartolomeo was planning a "triumphant return to capital" (518). Angelita, then, is the communist in terms of belief or ideology and Bartolomeo in terms of identity or position. And Bartolomeo's execution signifies not the triumph of identity over belief, but its opposite.

Perhaps we could say, however, that Michaels draws attention to the important formal premise of Silko, and we only need to read the novel less literally and more allegorically. What Michaels reads literally as a clash of civilizations has to be translated to understand that for which the races and landscapes are figures. The revolution of indigenous peoples in *Almanac* actually begins with the landscape itself, which is an agent in the novel. Silko tells us of the desert, "it was the land itself, that protected native people. White men were terrified of the desert's stark, chalk plains that seem to glitter with the ashes of planets and world yet to come" (222). Maybe for the indigenous armies "to get back the land was everything" (480), but in Silko's world the land itself wants to get back to the indigenous armies. The land thus terrifies the white men not

because of the faulty projection of psychological fear of the unknown of the colonial other, as when Conrad describes eyes looking on Marlow from the black forest in *Heart of Darkness* or, more comically, when Cooper's Indians jump out of trees and fall everywhere in the river around the white man's canoe. Instead, the white men are terrified because the landscape really does menace them. Silko thus reverses the liberal, multicultural reading established when Mark Twain pointed out just how unlikely it is that every one of those savages would miss the canoe, when it stands out as a huge bullseye beneath a short drop.

### **Ecology of Production**

What looks like identity or race-based arguments really are arguments based on obvious class or social relational differences. Silko figuratively represents the two poles of the end of work debate, which are also two competing tendencies in the capitalist system itself. On one hand, the rebellion of the land in the West represents the increased mass of machinery or dead labor. Machinery, according to Marx, creates no new value. Thus its presence—while necessary to control work and thus class struggle or refusal to work—poses a problem for the capitalist system. Over-reliance on machinery causes decreased production of value in the system as a whole, although it can increase profit for individual capitalists by increasing the pace of work or by providing better control over the transfer of value from machinery to commodity. On the other hand, the people's army led by Angelita La Escapia that marches north represents both the mass of globalized labor who do produce in labor-intensive industry in other parts of the globe and poverty.

Michaels's so-called post-ideological novel thus shows the inherent contradictions of capital at work. It illustrates them in the form of the landscape-menace, the tendency

to turn human labor into fixed capital, or machines (in a broad sense of the term, to include soft machinery such as computer programming, management protocol, and so forth). Because capital is first and foremost social—a system for absorbing time rather than producing objects—machines cannot create the value required to expand capital. Capitalism requires the continual creation of surplus value, but machines at best can only more efficiently transfer value from the labor process to its objects. Thus, the capitalist always faces the demand, and the concomitant anxiety, to advance technologically. Once the social average catches up to the rate of time of his production process, his rate of relative surplus value, and thus his profit rate, falls.

If machines cannot create value, however, one might ask, why do it? Why does the capitalist convert human labor into machine labor if machines cannot create value? There are two primary reasons. First, class antagonism often forces the hand of individual capitalists or industries to convert human labor to machine labor in order to preserve a high rate of productivity. In this way, for instance, the microelectronic revolution can be seen as a direct result of the struggles of the 1960s and 1970s. Second, we must keep in mind that the production of surplus value and its distribution are two different processes. Individual capitalists cannot control where the surplus value they've generated will go. So, while the tendency is for the average rate of profit to fall, that is only a tendency and it refers to the system as a whole. Individual capitalists and industries using large amounts of fixed capital will in the meantime reap the rewards of increased productivity that results from the technological advantages procured over competitors. This latter process is referred to as the production of relative surplus value.

The spirits in *Almanac* become insatiable, full of blood—but not the right blood, which is white blood. On the surface, this theme seems to support Michaels's thesis. Yet, I think a larger argument that could turn this surface reading into an illumination of an entire ecology of production can be made beginning—in this section—from Michaels's own instructive argument in his earlier *The Gold Standard and the Logic of Naturalism: American Literature at the Turn of the Century*. This argument is especially appropriate for this essay, because it deals with an ecology of production. Here Michaels argues that Frank Norris's *The Octopus* appears to be more about consumption than it does production, even though production holds first position in Norris's planned trilogy *The Epic of the Wheat*, which—had it been completed—would have followed wheat from its production through its distribution and realization in consumption. Published in 1901, in the "wake of populism's spectacular rise and fall," the imagery in the trilogy's first volume, *The Octopus*, demonstrates the populist emphasis on the opposition between production and distribution, and in fact on production itself, as anachronistic (185). The great railroad octopus isn't a triumphant middleman, but a consumer, as demonstrated by Norris's imagery of the railroad as "insatiable" and "devouring." Bodies run up against natural limits, though. That's why the railroad agent S. Behrman suffocates: "Norris manages to make it sound like he has eaten too much, or rather, like he has been unable to eat enough" (184). These limits lead to the necessity of the corporation as an artificial, intangible body: "What is clear is that in the market of the twentieth century, as Norris foresees it, there will be no place for the too-easily-satisfied appetites of the wheat farmers. Only 'insatiable' poets like

Presley and 'ever hungry' corporations like the Southern Pacific Railroad will survive" (186).

Through this opposition, Michaels argues, Norris replaces the problem of the idle capitalist, who does no work but lives off the labor of others with the problem of the insatiable capitalist, who can have everything and still want more. This second form of the capitalist could appear as a Rockefeller or Carnegie of the Gilded Age, but finds its truest expression in the corporation. Michaels here poses a problem that appears to continue one made in an earlier chapter in the same book, in which production that is too productive paradoxically starves rather than feeds. Work in the form of production turns out to be counterproductive for the producers. Michaels's new historicist reading replaces this problem, however, with that of the corporeality of the corporation, as it was understood around 1900 when Norris wrote *The Octopus*. While the corporation emerges as the new insatiable form demanded by a landscape of plenty, the problem of the apparent flattening onto each other of the moments of the capitalist cycle from production of surplus value to its realization turns out not to concern Michaels.

More interesting would be to pick up from the moment Michaels begins a new historicist reading of the corporation and instead continue with the problem of work as production. The wheat's tremendous harvest in Norris's novels exhibits an end of work, a limit to a form of production that will soon exhaust itself. Michaels focuses on texts written in the early twentieth century, especially in its first two decades. At the same time, agricultural production reaped the rewards of new technologies. The Smith-Lever Act of 1914 resulted in government agents roaming the countryside to educate farmers on scientific agriculture. Farmers who weren't suspicious of "book farming" rightly

worried that greater production would only result in lower prices that would benefit the city—the consumers—at their expense (Nye 187-88). In addition, the “Henry Fordizing” of agriculture progressed through the introduction of machinery. The number of horses and mules on farms peaked in 1918, as between 1917 and 1920 eighty-five tractor manufacturers sold 250,000 tractors (188). In 1916, it took 12.7 hours to harvest an acre of wheat, compared to 20 hours in 1880 (Rifkin 109). By 1936, this number was down to 1.4 (Nye 190). As a result of all this production, cash crops and cattle took up acres previously used to feed work animals, mechanical harvesters replaced seasonal workers, and farmers went broke during the Great Depression despite increasing yields and decreasing costs of inventory.

Moreover, the problem of satiation loomed large enough by the 1920s to result in the formation of “consumption economics.” Thus, the appearance of the insatiable capitalist demanded a corresponding insatiable consumer. Caught in between is the worker, or producer, whose production is too great. Since new investments in fixed capital at the time drastically reduced the labor hours necessary to create its products, and thus paid work diminished in some industries, it would appear that it was a matter of ability not desire. The creation of “consumption economics” and other similar efforts on the part of capital to get people to buy more things implies a similar, perhaps mirror problem of satiation. People reached a point where their desire for the products of their collective labor in the form of household commodities reached a limit, and what they desired instead was more time. They were happy to re-distribute labor hours in order to “share the work” with others, rather than hang onto their work in order to buy more things. What Michaels perceives as a kind of confusion on Norris's part or a problem for

the naturalist form might also be interpreted, then, as the recognition by Norris of a new problem. Production appears doubled as consumption in *The Octopus*, because a phase of capitalism emphasizing mass production of certain durable goods is passing in the United States. Production begins to be doubled as consumption, because consumption emerges as a problem, not of giving the workers enough wages to consume products, and thus in turn allowing capital to realize the surplus value created in the labor process, but rather as the problem of desire to consume. The populist desire to cut out the middleman could then also be seen as a desire to ward off an emerging type of middleman, a new form of unproductive worker who will appear prominently in Silko's *Almanac of the Dead*.

The problem of the catastrophe of production is shown in Norris's wheat trilogy as a problem of the productivity of the land, the bounty of the natural landscape; but of course that productive relationship is augmented by the technologies of agriculture as agricultural production is industrialized. This catastrophe leads to wheat working as a kind of actor, as when it suffocates S. Behrman. *The Octopus* represents or anticipates the tremendous productive powers of the industrialization of agriculture. Though its publication precedes the short history I just presented, one can see the key components that will emerge in Magnus Derrick's use of machinery and expansion of the scale of his wheat production, as well as—as Michaels discusses—Vanamee's musings on the immaterial power of the seed. This immateriality, in fact, remains of great interest in what might be termed post-industrial farming, as among other things it is used to re-create conditions of scarcity.

In *The Pit*, the second novel of Norris's trilogy, Curtis Jadwin is crushed by the very wheat itself, by the bounty of too much production. After the Crookes cabal has failed to break Jadwin's corner, we find Crookes in his office a few days after he backed out on his co-conspirators in order to prevent his own ruin. Cressler comes in wanting to get out as well before he finds himself broken. He asks Crookes to buy back his shares for him. While Jadwin waits for the purchase to come back and thus the news of whether or not the price will break him, Crookes does not speak to him. He works at his desk, signing letters: "the scrape of his pen the only noise to break the silence of the room" (289). Curiously, an ambiguous sentence follows. Crookes breaks the silence to observe, "pretty bum weather for this time of the year" (289). Does this observation about the natural world presage Crookes's more correct determination a bit later? Once Cressler leaves, Crookes considers Jadwin once more, first mumbling to himself a threat, an epitaph for Jadwin not to "get so big that all the other fellows can see you—they throw bricks" (291). And then, just as when Faust retries different interpretive procedures, Cressler reconsiders: "I won't try to kill you anymore. You've cornered wheat, have you? All right. . . . Your own wheat, my smart Aleck, will do all the killing I want" (291). From there kicks in Norris's writing of the wheat's momentum, the effect Jadwin has had on things. "Anecdotes" circulate. Both the Republican and Democratic presses fire up to celebrate or denounce. Farmers from all over the Midwest show up to sell small quotas of wheat they previously could not have sold for profit. A spokesman for the wheat growers talks of "a great wave of prosperity . . . rolling because of Jadwin's corner" (292-93). Paradoxically, the "wave of prosperity" is what breaks Jadwin and his corner. As is made clear in arguments between Gretry and Jadwin later in the

book, as well as in *The Octopus*, when all farmers try to ride such a wave of prosperity, it will crush men like Jadwin. Too much production crushed the farmers in *The Octopus* and now Jadwin in *The Pit*. The lesson, according to Michaels, is that “nature’s uncontrollable bounty does *not* punish every businessman, indeed, it positively favors a few. For the crash in prices caused by nature’s cornucopian excess punishes producers and monopoly-inclined regulators—Rockefeller, Jadwin—while paradoxically rewarding those whom Nevins calls ‘speculators in depression,’ the short-selling bears” (72). Michaels, it seems, should thus think of *Almanac* as a logical successor to Norris’s trilogy of the wheat; but he does not, instead citing its emphasis on bodies over ideologies as evidence of a post-political bent.

Similarly, in Silko's *Almanac* the landscape plays an active role in a catastrophe of production. The landscape-menace of dead machine labor is joined also by certain forms of immaterial labor. Both seem to begin from an abundance of production. Here is a typical passage that describes a landscape:

The United States allowed huge stores of grain and cheese to rot; El Feo had watched on television: the waste, great hills of discarded lumber and wire, and his heart had beat faster because he had realized someday the United States would spend all its money and sell off and strip everything they could take from the land. Finally, the United States would be poor and broke, and all the water would be gone; then the people would see European descendants scurrying back across the ocean back to the lands of their forefathers.

El Feo focused all his energy into one desire: to retake the land. El Feo's work was to remind Angelita and the others not lose sight of their task.  
(523)

Silko draws our attention to material things, what might be termed “basic” items: grain, lumber, wire, water. Moreover, she draws our attention to these items as large quantities, behemoth heaps of things: huge stores of grain, great hills of lumber and

wire. The passage clearly marks the great waste and destruction capitalism has wrought on the earth's environment. It might remind readers of any number of spaces we have seen, driving by landfills for instance. Or, expanding our geographical horizon, we might think of the great junkscapes overseas, like the circuit boards and computer wire piling up in Ghana.

These masses of elementary things also represent what economic texts refer to as raw materials, the “stuff” the capitalist gathers up from the land together with his capital and labor in order to produce surplus value. Huge stores of grain, for instance, even rotting, might focus our attention not only on waste, but also on the earth as a landscape of plenty—not a world of scarcity requiring intervention through production, but a world of abundance. Although this landscape offers these generous amounts of raw materials, El Feo gets excited when he realizes the United States—the capitalists—will eventually take everything and at that moment his people will get the land back. If the formal premise of the novel is that the spirits of the dead—which exist in the land itself—reject the white Europeans who stole the land, then passages such as this one indicate that the landscape and its spirits represent not only the various Native American gods named in the novel, but also the logic, or the contradictions, inherent to the capitalist system itself. The Europeans leave not simply because they use up the resources of the land, but because the resources for production of surplus value are used up. If it were simply a matter of using up the resources themselves, the passage would be ambivalent, demonstrating not so much an emptying of the landscape of its resources, but a piling up. The grain and cheese may rot, but that only comes after production. Furthermore, El Feo's desire would be apocalyptic or suicidal. The

landscape thus is only spent from the perspective of the capitalists. They leave not when everything has been destroyed or taken, but when *they* have taken all *they* could take. Silko's description illustrates the difference between use-value and exchange-value in that the grain rots not for want of hungry mouths to feed, but for want of profit to make from that consumption.

*Almanac* thus represents the tremendous productive powers of the industrialization of all sectors of capitalist production, but as suicidal powers that can bring about the end of work. Its agricultural context involves the results of a decisive transition from industrialization to a post-industrial end of work. From 1971 to 1976, Earl Butz, Secretary of Agriculture, presided over a state of agriculture in which artificial conditions of scarcity were created to keep prices from dropping so low that it wouldn't pay to farm. Increasing mechanization was just one problem driving prices down. Among other factors, widespread electrification resulted in the possibility of food from anywhere capable of harvest, export, preservation, and storage, thus presenting globalization as a new problem. Between 1956 and 1975, fifty-eight million acres of farmland were retired in order to keep supply down; but Butz declared that we had to produce more. Holding back production struck him as absurd, because he confused use values and exchange values, and consequently the U.S. began overproducing corn—not in the sense that the world's hungry became fully fed, but that the market became full. Today most of the corn produced in the U.S. isn't produced as food for human consumption. It's produced as a raw material, most if it ending as feed for livestock or as corn syrup for mass production of prepared foods, such as fast food or soft drinks. In the film *King Corn*, a retired Earl Butz points out that the present American family feeds

itself with 16-17% of its take-home pay, which is about half of what it cost a family early in the twentieth century. But in this situation—as it turned out to be for many of the farmers in *The Octopus* and *The Pit*—it doesn't necessarily pay to produce. The two filmmakers in *King Corn*, who move to Iowa to grow an acre of corn, estimate that they reaped an average harvest from that acre, and they lost money before taking into account the government subsidies they received, as was predicted by the farmer who helped them fill out their first form before they began.

My point in comparing these two writers is, first of all, to contextualize Silko's work within a literary history other than contemporary Native American literature, which I think in part leads Michaels to characterize *Almanac* as an example of post-ideological multiculturalism. Second, and more importantly, I want to draw a parallel between these novels. Norris's *Epic of the Wheat* trilogy depicts an abundance of production that anticipates the industrialization of agriculture, and, more importantly—as Michaels's reading brings out—a corresponding rise of immaterial labor, some forms of which could be termed unproductive. Norris's novels anticipate consumption economics, and they also depict and anticipate the growth of finance capital, as well as the industrial re-engineering of the seed. Hardt and Negri's metropolis of immaterial laborers meets Norris's wheat in the figure of "city corn," the monoculture that came to predominate in the U.S. in part because it required less sunlight and could be grown in dense, crowded conditions.

*Almanac* depicts an abundance of production whose corresponding forms of immaterial labor similarly include finance capital, but also the application of complexity theory to the transportation of goods and a much more advanced system of

industrialized agriculture. Silko shows us both descriptions of landscapes of basic goods and work that has little connection to material commodities, such as David's photography, which becomes profitable through the speculative exploitation of, first, the subject's death and then the photographer's. When a farmer points out to the filmmakers of *King Corn* that what they see in the Iowa farmland is almost completely the production of food not fit for human consumption, they follow the path through the middlemen of livestock production and fast food. When they browse the products of a convenience store looking for all the products that contain corn syrup, which turns out to be virtually all of them, what becomes clear is that the material production of wheat or corn has become swallowed up by the immaterial production of advertising images and slogans, as well as machines such as the vending machine that automate the point of purchase transaction. The descendants of the suspicious farmers who worried that scientific agriculture would benefit the city by lowering prices at their expense can see the opposition in starker terms, as that between Madison Avenue branding and image-making and farmers who eke out a living through government subsidies growing inedible food that is only raw material for the production of other objects, which are in turn only raw material for the dissemination of images, slogans, and fuzzy feelings of well-being—immaterial labor.

### **Ecology of Post-Industrialism**

In the second half of this essay, I continue to analyze *Almanac* as a representation of elements of the capitalist system itself, rather than class identity or belief. Moreover, I use *Almanac* to illustrate the end of work on a global scale and in the process compare interpretations of Marx's labor theory of value in order to characterize the period. We can begin to appreciate from the previous comparison of Norris and Silko and

Michaels's useful reading of the former that post-industrialism does not refer to conditions in which the industrial disappears, but rather when its logic of productivity becomes no longer possible. Too much productivity makes both consumption and production problematic. In *Late Capitalism*, Ernst Mandel describes characteristics and effects of the third technological revolution. These include a qualitative leap in the organic composition of capital, a drastic increase in the proportional emphasis of preserving value to creating value, and a drastic increase in the money spent on research and development. This is because of the greater compulsion to find relative surplus value through technical innovation. In one example cited by Mandel, a petrochemical works' wages amount to about one one-hundredth of a percent of its total capital (195). At the same time, living labor employed by capital shifts from hands-on production to the supervision of preparatory work. How one interprets these forms of labor in terms of Marx's labor theory of value and other concepts greatly changes one's reading of the end of work, and thus perhaps the capitalist dynamic in our time and the future. We have seen how Hardt and Negri, and other writers, have interpreted Marx's machine fragment in the *Grundrisse* as positing a new type of worker, a social laborer, as the key actor of the labor process. This shift from individual producers to the general intellect transforms the productive process: but an interpretation of its sustainability as an ecology of production requires an analysis in terms of the labor theory of value.

A key factor in determining whether or not labor is productive—and thus perpetuates capital—is space considered as “spheres” in Marxist writing. The productive sphere brings together wage-labor and capital in order to produce surplus value; the reproductive sphere uses the wage to reproduce the wage-laborer's labor

power. Many services in the services industry originate in this reproductive sphere, and become commoditized, that is, they become unproductive wage-labor. Another distinction is that between the productive sphere and the sphere of circulation. This latter sphere can include banking and the credit system, as well as infrastructure, such as transportation. Unproductive labor, according to Marx, includes all labor indifferent to the specific use-value of commodities. The capitalist system requires such work in order to decrease circulation time between the production of surplus value and its realization. Banking and credit, for instance, can make it possible for individual capitalists to lay out money for a new cycle of production before realizing the surplus value from a previous cycle of production. Thus, Mandel stresses the importance of deciding where to differentiate these spheres in both *Late Capitalism* and in his introduction to the second volume of Marx's *Capital*. In the latter, Mandel observes four key questions for a definition of productive labor. Of the four, two deal directly with this distinction (42-46).

The growth of service industries in the U.S. and Europe may signal an end of work. Similarly, forms of wealth creation such as land speculation and money trading are unproductive, and can be traced to Marx's sphere of circulation in earlier forms of commercial capital and banking. Silko illustrates these forms of labor in a landscape that appears depleted of natural resources necessary for production, and in whose setting bodies appear as depleted as well. Sterling, who will be hired to work for Zeta and Lecha, arrives in downtown Tucson. Silko emphasizes the disorienting shock of the heat, the desertedness of the desert, and the specifically military character of economic power. Sterling steps off the bus and "collide[s] with a wall of desert heat" (27). Instantly covered in sweat, only to feel it "sucked away" along with his breath in the next instant,

Sterling retreats to the bus depot. There he discovers benches full of “refugees from the heat” that he recognizes as non-travelers. When he recovers enough to walk around downtown Tucson, he takes us through the space of capital flight, an expression of capitalism’s ability to act and to destroy from a distance. Tucson appears to him “pretty much like downtown Albuquerque before they ‘urban-renewed’ it” (28). The only “signs of life” are a cruising police car and men loading “ice chests” “full of blood” outside the blood-plasma donor center (28). “The donor center was probably why the little park was so full of hippies and run-down white men” (28). In short, downtown Tucson resembles a war zone: fallen exhausted refugees, roaming police(military)-vehicles, and the circulation of blood.

Sterling’s journey shows us the inter-connection between gangster-wife and land speculator Leah Blue’s urban-renewal projects and Trigg’s biomaterials business, as well as the inter-connection between economic and politico-military power in each scheme. As necessary condition for and part of the process of their money earning, the potential multitude has been scrambled, de-populated. Capital flight prepares this terrain—in which the only signs of life are flows of police and blood/money—by detaching people from space, making them abstract and free-floating, invisible but for the biomaterials the homeless provide.

Tucson looks like an older Albuquerque to Sterling, because it represents a stage in the development of a dominant land speculation that is finance capital’s fundamental relation to space. Jameson has analyzed the phenomenon of finance capital in his essays “The Brick and the Balloon” and “Culture and Finance Capital.” He outlines Giovanni Arrighi’s narrative of the cycles of capitalism that mirror Marx’s equation M-C-

M'. In the first two moments, money is accumulated for capitalization and that capital, in turn, is invested into a site of production. In this stage, space is territorialized, transformed into an area of production. In the third moment, however, capital flees to look for a more profitable investment, deterritorializing the site it attacks. Moreover, as Jameson notes, another “grimmer conjecture” becomes possible. Capital can make the ultimate deterritorialization, choosing not to return to production at all, but to seek non-productive spaces, such as finance capital and land speculation. In this realm, the capitalist generates wealth simply through the circulation of commodities. Similarly, capital, as we know it in the first two moments of Arrighi’s spiral, does not appear in Silko’s *Almanac*. We have smuggling, bootlegging, and pimping, but no production.

As land mutates from the background of commodity production to a commodity itself, space realizes the ultimate abstraction. Jameson elaborates on the work of Georg Simmel—for whom the money form marks the very emergence of this abstraction—in order to explain this phenomenon. The acceleration of money flow in increasingly abstract space frees it from the territorial groundings of production. Money begets more money the faster it flows, expanding “under its own momentum” (“The Brick and the Balloon” 166). This power is evident, Simmel observes, “by the fact that within the city the ‘unearned increment’ of ground rent, through a mere increase in traffic, brings to its owner profits which are self-generating” (Simmel, qtd. in Jameson 166). The land speculator realizes enormous profits simply by liberating space from the constraints of manufacture and small business.

In Jameson’s analysis, the abstraction of modernity and indeed postmodernity, as well as the fragmentation in aesthetic production, stems not from the abstraction of

money—which, prior to industrialization, had heightened awareness in the properties of objects, as owners sought their marketable features through close inspection—but from “money itself in a state of capital accumulation” (“Culture and Finance Capital” 160). Modernist abstraction stems from the abstraction of money in a state where the latter is used to accumulate more money, not to gain commodities. In this relationship, money’s interest lies outside itself. It is free to “circulate without reference to an older kind of content” (161). The difference between modernist and postmodernist abstraction and their respective deployment of the fragment is that while the former carried a semi-autonomous meaningfulness lacking outside reference, in the latter, the fragments are somehow saturated with stereotypical meaning. The difference, Jameson suggests, is that in modernism culture withdraws into art; but in postmodernism, it saturates and colonizes the real world (i.e., culture). Image-fragments in the postmodern, because of their saturation with decontextualized stereotypical meaning, have the same freedom of flow as finance capital.

Fragments take on this postmodern power in *Almanac*, traveling the same free-flowing circuitry as finance capital. Indeed, the two go hand-in-hand in Leah Blue’s real-estate scheme, which relies on the power of image-fragments in order to transport Venice to Arizona. Flowing water provides the stereotype that travels this postmodern circuitry:

The water gimmick really worked in Scottsdale and Tempe. A scattering of pisspot fountains and cesspool lakes evoked memories of Missouri or New York or wherever the dumb shits had come from. . . . Market research had repeatedly found new arrivals in the desert were reassured by the splash of water. (374-75)

The “visual culture of consumerism” saturates and neutralizes the “solitary obsessions” and “private thematic hobbies,” mechanisms with which, according to Jameson,

modernists dealt with the experience of loss of meaning (“Culture and Finance Capital” 150). Instead of the local creation of new values, or codes, Leah’s scheme speaks, through its pisspot fountains, the universal language of the axiomatic. Just as the rise of the abstraction of finance capital has led to the paradigm of the global, post-industrial information city, so too has the abstraction of land speculation led Leah to create her own “city of the twenty-first century” (374). She imagines Tucson as an abstract space of fluid interchangeable plots of exchange value, open to capitalist accumulation that takes advantage of the “self-generating power” of ground rent: “Some nights Leah would lie with her eyes closed and imagine the city of Tucson and surrounding Pima County were a gridwork of colored squares for Chinese checkers” (360).<sup>54</sup>

I argue that such obvious forms of unproductive labor as land speculation taking place in this desert setting and intrinsically connected to servile labor—represented by the homeless who sell their biomaterials, or Sterling and Seese—and knowledge work—represented by the market research and creation of images that makes Leah’s real-estate scheme work—calls into question the argument that the latter forms of work could be productive labor. I argued earlier in my comparison of Norris’s wheatfield to Silko’s desert that the evolution from one space to the next shows how immaterial labor’s importance appears to arise out of overproduction. If we replace water with corn and fountains and lakes with plastic bags and bottles and logos, Leah’s land speculation shares in common with post-industrial food production the reliance on apparently

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<sup>54</sup> In *Commonwealth*, Hardt and Negri suggest that the creation of wealth in the metropolis—which is a metaphor for the scene of communicative labor and cooperation—works more like ground rent than it does production. Biopolitical capital creates rent rather than profit, because it takes place in this common space and is increasingly autonomous from capital—autonomous, because cooperation arises out of production rather than predetermining it (250-51). It is beyond the scope of this essay to analyze Marx’s theory of ground rent. Such an argument, however, does seem to revise Negri’s notion of ecology that I use in this essay, because Negri is still talking about production with that concept, and rent is a separate form of revenue from profit in Marx’s theory, as it is described in the third volume of *Capital*.

unproductive labor. The labor involved adds nothing to the use-value of the good. Rather, this labor is aimed at persuading people to buy. The “consumption economics” that arises out of Norris’s wheatfield in this context has become knowledge work or communicative labor, or, to put it another way, the circulatory sphere has become disguised as part of the productive sphere. The lesson of post-industrial capitalism’s offering of the non-choices of the typical convenience store, in which one chooses his or her brand of soft drink, is that the actual material commodity has little use-value and little labor (and thus exchange value) in it. The wrapper, the brand, the logo, and so forth all represent the work of the circulatory sphere, whose role is to help capital realize value and not create it.

### **Ant Science**

Since living labor, not machines, produces surplus value, it may seem that the capitalist who spends the bulk of his capital on wages is rewarded with greater profits. This is counterintuitive. Not only do in-your-face examples like Bill Gates’s wealth appear to contradict the point, the basic tendency of capital to expand does as well. Capital’s logic is, as Ernest Mandel writes in his introduction to the third volume of Marx’s *Capital*, “expansion, growth, enlarged reproduction, through a substitution of living by dead labour” (13). *Almanac of the Dead* is thus about a process, through which the living are made dead. No production seems to take place in *Almanac*. Instead we have smuggler, thieves, strippers, hitmen, cops, whores, and “insurance” salesmen. *Almanac* also presents a world in crisis, one of intense revolution when a large uprising of indigenous peoples comes up from South America through Mexico and at the novel’s end pressures the border between U.S. and Mexico. In addition, decentralized and smaller but no less intense acts of violence spring up in the U.S. A solitary inventor

blows up a police car with a solar “war machine.” Eco warriors blow up Hoover Dam in order to “free” the Colorado River. Other eco warriors struggle to take the U.S. back to the Pleosthenic Era.

One of the novel’s primary characters, the security salesman Menardo, established his reputation among the dead landscape of machines. When a tidal wave threatens docks and warehouses, including a warehouse recently stuffed full of appliances imported from the U.S., Menardo charts a plane and, upon arrival, promptly gathers up everything with wheels—dump truck, milk truck, wagons, wheelbarrows—and all the available labor power, by promising high wages and life insurance. While the hospital waits to be safely evacuated, Menardo manages the evacuation of machines from the warehouse. The speed of the process prompts Menardo to daydream that “the rising wind was pushing the crates of washing machines and deep freezers out of the building like leaves” (262-63). The following day, Menardo becomes well-known and attracts business from clients concerned about the indigenous armies rising in the south.

In this scene, Silko has Menardo daydream the landscape as an actor. If the earthquake that caused the tidal wave could be attributed to the landscape’s revenge against the Europeans, his daydream seems to contradict it. We could read the passage as an example of the capitalist’s triumph over nature through ingenuity and labor. Even so, in this case we have Menardo’s imagination raising that “manmade” power of mind to a more transcendental level, associated with the landscape or nature. Another interpretation becomes possible if we consider a Marxist interpretation that explores the system itself, its laws and rules of motion, rather than class. Menardo’s

daydream is a recognition of the equalization of profit at work. Menardo daydreams forces of nature moving the machines in place of the real scene of laborers moving them, and that displacement could represent the way surplus value is created in settings of low organic composition of capital, such as in the global south, and in turn re-distributed to settings of high organic composition of capital. Putting this scene in the context of the entire novel, then, we might realize that the labor theory of value thus need not be abandoned, as Hardt and Negri argue. Intensive machinery and immaterial labor in the U.S. and Europe that may make it appear as though we've gone beyond Marx only represent a small part of the total scene. The rest lies behind our backs or beyond our borders.

The resolution is not so simple though; we could also see the general intellect of a vast social laborer at work in Menardo's dream. A key representative of this social laborer, the logic of swarm intelligence, works through, in the words of one *National Geographic* writer, "simple creatures following simple rules, each one acting on local information." This kind of networked intelligence has been championed for its decentralizing, and even collective process. Stanford Biologist Deborah Gordon describes how ants forage with this neat summation: "[N]obody's deciding whether it's a good day to forage. The collective is, but no particular ant is" ("The Genius of Swarms"). Yet, real-life applications of swarm intelligence do not let the collective decide anything either. They allow large corporations to transfer raw materials across distances, coordinating complex routes and the far more complex vagaries of finance capital and deregulated energy prices in order to come up with the most efficient system for

transporting goods. This is how capital manages the working period. So the vast landscape of raw materials returns:

La Escapia used to walk for hours around and around downtown Mexico City, in a daze at what she was seeing--at the immensity of wealth behind the towers of steel and concrete and glass, built on this empire for European princes.

In the filthy, smog-choked streets with deafening reverberations of traffic jammed solid around her, La Escapia had laughed out loud. This was the end of what the white man had to offer the Americas: poison smog in the winter and the choking clouds that swirled off sewage treatment leaching fields and filled the sky with fecal dust in early spring. Here was the place Marx had in mind as 'a place of human sacrifice, a shrine where thousands passed yearly through the fire as offerings to the Moloch of avarice.' La Escapia really liked the way Marx talked about Europeans.

El Feo kept quiet but nodded vigorously at the right places. La Escapia was going to make him pay through the ears for acting as go-between for the elder sisters. The elders just wanted the land back; they didn't want to hear about 'revolution.' (312-13)

We can see that what's most efficient for the capitalist is not most efficient for the rest of us. Interestingly, this situation is similar to how Alain Joxe describes the U.S.-led "Empire of Disorder." The would-be conquering state that goes to war against another nation in the past was interested in expanding its empire. This would include the conversion of people from citizens of one nation to citizens of the new empire, under which they would now find protection. The U.S., Joxe argues, is not interested in expanding its *territorial* empire in this manner, but rather wants to influence and manage disorder in such territories in order to best exploit its resources for profit and maintain hegemony in the region. The same problem that Michaels writes about in *Shape* thus appears in *Almanac* in a different way than he considers. In this case, disinterest in the land—which equals disinterest in the particularity of the medium or of the culture in Michaels's argument—appears not as ideological conversion, but precisely the post-

politics Michaels associates with the territorial emphasis in *Almanac*. Materials organized according to the “genius of swarms” manages production in a way that’s not territory-bound.

### Conclusion

Silko thus presents us with what I would call two opposing poles of the end of work rubric. One focuses on machine-intensive work in the West, where Marx’s vision of the general intellect in the “Fragment on Machines” appears to have been realized (see my earlier chapter on cyberpunk for more on this). This perspective is represented in different ways by Hardt and Negri’s co-authored texts *Labor of Dionysius* (1994), *Empire* (1999), *Multitude* (2004), and *Commonwealth* (2009); Anson Rabinbach’s *The Human Motor* (1990); Jeremy Rifkin’s *The End of Work* (1995); and, more complicatedly, much of Negri’s solo-authored work at least since *Marx Beyond Marx* (1979). In addition to these accounts, a diverse group of writers, including Vivian Forrester and Alvin and Heidi Toffler, have written about the displacement of work due to automation and computers. The other pole focuses on production at a global scale, considering the links between the immaterial labor of Western economies and its poorly paid and unpaid agricultural and industrial work. Here the automation, knowledge work, and service work—theorized by the writers named above as posing challenges either to the law of value or to jobs or to capitalism altogether—are described as absorbers of surplus labor created elsewhere. Capitalism is totalizing. According to Marx’s explanation, although capital may extract surplus value locally, the individual capitalist does not realize or command this surplus value. So, if machines do not create value, then machine-intensive industries must be balanced by labor-intensive ones. As George Caffentzis puts it in “The End of Work or the Renaissance of Slavery?,” “the cyborg’s

existence is premised on the slave.” Using this second pole of the end of work rubric to read scenes depicting a landscape of no production, the interpretation is easy: we don’t see production in the novel because much of that work has been globalized, exported to the so-called third world. And the reason we see squalor, poverty, and waste alongside great riches—characters in the novel tend to be rich or poor—is because capital produces great wealth alongside great misery.

I have covered arguments represented by the first pole in earlier chapters. As I discussed in the introduction, Andre Gorz looks at a similar class of communicative-affective work and arrives at a very different conclusion. Hardt and Negri see the communicative-affective workers as a new class of immaterial, or biopolitical, labor that directly produces value, and has become the vanguard, hegemonic class of labor. Gorz focuses less on the laborers themselves and more on the machinery involved in this work. Since the beginning of the microelectronic era, Gorz argues, capital cannot expand through the addition of technology, because the miniaturization—the implosion of the writing scene—does not make it possible to increase constant capital at a rate that would increase the number of workers. Instead, the opposite happens. Extensive expansion of constant capital doesn’t create new slots for workers, even worker-appendages; it reduces them. So, for instance, new industries such as biotechnology, the subject of Eugene Thacker’s *Biomedica* (see chapter M), are capital-intensive and do not create work in the form of jobs.

Thus, where Hardt and Negri see not an end of work, but an end of the law of value, Gorz begins with the law of value and concludes, based on its logic, that we have arrived at an end of work phase. Hardt and Negri look at the service industry and see

communicative-affective laborers producing value through emotion and creativity. Gorz sees the service industry as a disguise, a dissimulation of work. Service workers produce no material commodities, and thus do not expand capital. Since there is not enough work to go around, the service industries provide a way for charity to appear as work. This is perhaps the true end of the welfare state: the wealthy (or the middle class via credit) on a luxury vacation pay money and distribute wealth that in the past would have been used to expand capital via the growth of a capitalist enterprise or the provision of washing machines or second and third cars to every household. The service worker creates no material product; he or she provides a service, produces emotion or affect.

This service-led phase of capitalism, whether it is a new phase that can expand capital or a disguise, is the effect of many causes. As mentioned above, microelectronics changed production and resulted in the inability of capitalism to increase jobs while expanding capital via machinery. The women's movement resisted unpaid housework, which resulted in "services" like cooking and cleaning becoming commodities. This is the collision of the productive and reproductive spheres described in chapter M. A third cause is the saturation of the consumer market with appliances and automobiles. By 1979, there was a car for every two Americans. 90% of households were stocked with radios, refrigerators, washing machines, and the like (Rifkin 90). This dead landscape of machines and labor-saving devices was in part the result of the solution to an earlier end of work crisis. Technological advancements such as the Fordist assembly line and Taylor's scientific management cut down the number of labor hours required to produce various commodities: in the span of a little more than

a decade, the number of labor hours required to produce an automobile dropped from 4,664 to 813 (Rifkin 18). Consequently, in the 1920s, corporations seek to create the “dissatisfied consumer” and “consumption economics” emerges as a new subfield of economics. Advertising campaigns belittle “homemade” products and “brand names, once an oddity, became a permanent feature of the American economy” (21). The “Share the Work” Movement of the 1930s emerges at about the same time, and its calls for re-distribution of labor hours are similar to arguments made today—arguments that are similarly ignored.

What Michaels takes as a post-ideological novel favoring identity and multiculturalism over casting its lot with capitalism or communism turns out to be a densely layered depiction of all the contradictions of contemporary global capitalism. And when Michaels explains how Zizek follows Hardt and Negri in ontologizing poverty, a form of identitarianism that in Michaels's reading is equal to declaring a war on terror, we can see that what is derogatorily referred to as position or identity ends up being absolutely fundamental to understanding the ideological differences at play here.

For once we turn poverty into a stricture of identification, a relation to identity rather than to money, we can begin to think that our problem is that we're all insufficiently 'poor.' It's for this reason that Zizek, as hostile to the usual forms (cultural, national, racial) of identitarianism as Hardt and Negri, nonetheless finds himself reproducing their ontologizing commitments, lamenting the plight of the 'New York yuppie jogging along the Hudson River' and of all the other Last Men 'having a good time' while losing 'life itself' (88). What's wrong with capitalism on this account is that it produces DVD players and TIVO, not that it produces inequality. (181)

The problem is not a matter of dividing up the goods, but of what the goods are that will be produced. In fact, it could be said that Michaels's misreading of Zizek and Hardt and Negri results from his own post-political position. Michaels confuses one ideological position for two, thus betraying the post-historical and thus—by the momentum of his

argument's own logic—identitarian content of what he takes to be politics. We are thrown back onto the very problem Rabinbach finds when the industrial worker dissolves into a vast cybernetic machine. Using Michaels's terms, we might say contentless work that has lost its content has become post-historical. Rabinbach's problem depended on seeing capital's dissolution of the industrial worker as causing us to lose our sense of work's meaning, which was attached to our sense of the laboring body. This only explains the end of work as our own loss of interest, however, not capital's. Capitalism remains profoundly interested in the body, re-contextualizing its components, downsizing and resizing it into a new kind of body that intermingles with other bodies and operates at various scales.

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## BIOGRAPHICAL SKETCH

Aron Pease received his Bachelor of Arts degrees in art and English from Central College and his Master of Arts degree in English from Bowling Green State University. He received his Ph.D. from the University of Florida in the summer of 2010.